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A STUDY ON FINANCIAL RISK AND ITS IMPACT ON THE FINANCIAL PERFORMANCE OF BANKING SECTOR IN YEMEN

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1. Introduction

Banks' risk management became and remained a relevant topic after the financial crisis. However, although it has made considerable progress, as the practices become more sophisticated and as the regulations put pressure on enhancing banking firms, it has become a core management field in banking with a large concentration of resources dedicated to identifying, assessing, and controlling risks (Bessis, 2019). Due to the increasing globalisation of financial markets, long-term innovation, banks face many new challenges in risk management and product financial instruments. The banking risk environment has changed dramatically over the years. Risk management should encourage and facilitate decision-making and activities, which is the essence of financial risk management for the bank's profitability and growth prospects (Bergendahl & Lindblom, 2007). Thus, risk management is one of the main activities of every financial institution within commercial banks, as it involves identifying, measuring, monitoring and controlling all types of financial and non-financial risks.

1.1 Banking Sector in Yemen

The banking sector is considered one of the leading sectors in modern economies, not only for its essential role in mobilizing domestic and foreign savings and financing investment, which is the backbone of economic activity but also has become the most critical link outside the world. Because of the breadth and complexity of its activities, the development has become a standard for judging the integrity of the national economy or its ability to attract domestic and foreign capital where the absence of a financial market in Yemen makes banks the most vital financial institutions in the money markets in Yemen. They play a leading and strategic role in implementing the goals and components of the state's monetary policy. Thus, they contribute fundamentally to the escalation of economic and social development pillars.

Banking sector in Yemen is the only economic mediator collecting financial resources by saving to be redirected in the financing process to economic institutions in the context of bank loans granted to them by banks. The banking sector in Yemen comprises twenty banks with 358 branches, including the central bank of Yemen (CBY). The classification of banks in the central bank report is thirteen conventional banks plus One is under liquidation where divided into nine local conventional banks (operates a branch network of 179 branches) and five foreign banks branches (operates a branch network of twelve branches). And five are local Islamic banks (operates a branch network of 50 branches).

Table 1. Structure of Banking Sector in Yemen.

No	Banks Names	Bank Type	Incorp-Oration Date	Branc-hes
1	**Central Bank of Yemen (Reserve Bank of Yemen)**	**Reserve bank**	**1971**	**22**
2	Yemen Bank of Reconstruction & Development	Conventional	1962	43
3	National Bank of Yemen	Conventional	1969	27
4	Arab Bank limited	Conventional	1972	7
5	United Bank Limited	Conventional	1972	3
6	Housing credit bank	Conventional*	1977	1
7	International Bank of Yemen	Conventional	1979	22
8	Yemen Kuwait Bank	Conventional	1979	16
9	Cooperative & Agricultural Credit Bank	Conventional	1982	46
10	Al-Rafidain bank	Conventional	1982	1
11	Yemen Commercial Bank	Conventional	1993	15
12	Islamic bank of finance and investment	Islamic	1995	6
13	Tadhamon International Islamic Bank	Islamic	1996	21
14	Saba Islamic Bank	Islamic	1997	15
15	Watani bank	Conventional	Under liquidation	
16	Yemen Gulf Bank**	Conventional	2001	2
17	Shamil Bank of Yemen & Bahrain	Islamic	2002	9
18	Qatar National Bank	Conventional	2007	1
19	Al Amal Microfinance Bank	Conventional	2008	15
20	Al kuraimi Islamic Bank	Islamic	2010	87

Source: Central Bank of Yemen.(2020) Banking System,

- *Does not provide any service to the public, and there is no financial reports for the bank
- **excluded in purpose

On the other hand, the capital structure of operating conventional and Islamic banks in Yemen according to the type of capital; there are two banks with 100% capital owned by the government and two banks with 100% capital owned by private and four banks 100% of capital owned by foreign banks and the remaining ten banks are mixed owned from government, privet and foreign.

In the form of ownership of capital of eighteen operating banks, there are seven banks with local capital owned 40.3%, four with foreign capital representing 18.6%, and seven with mixed capital owned by local representing 41.1% (CBY).

1.2 Background of study

The banking sector in Yemen faces a series of challenges arising from the ongoing economic meltdown in the country. The challenge facing the banking sector is the long-term liquidity crisis since 2016. In the aftermath of the escalation of the conflict in early 2015, the deterioration of the local currency exchange rate, the loss of revenue as a result of asset freezes, the interruption of public debt service, the obstacles preventing the free movement of liquid cash inside and outside Yemen, and the general deterioration in the confidence of the private sector in the banking sector, Thus, requests for cash withdrawals from the banking sector increased. In the first six months of 2016 only, customers withdrew from their accounts about 300 billion Yemeni riyals, which represented a collective exit from financial flows from the formal economy to the informal economy, which stimulated the exit of the financial cycle from the formal economy to informal financial markets and networks.

According to the Yemeni Ministry of Planning and International Cooperation 2018, it is a financial and humanitarian crisis in Yemen. The cumulative gross domestic production contraction was estimated at 47.1 per cent from 2015 to 2017. Cumulative inflation was estimated at 59.4 points from December 2014 to December 2018. The emergence of a severe liquidity crisis and a crisis of confidence plaguing the Yemeni banking system. In addition, on September 18, 2018, the CBY decided to raise the interest rate on certificates of deposit to 27 per cent while raising the profit on agency deposits to 23 per cent and raising the interest rate on government bonds to 17 per cent. The most important is the Appreciation of the foreign exchange rate against the Yemen riyal from 200 in 2008 to 580 in 2019. (CBY, Exchange rates). Abdou, Muslem & Ismal (2014), in their study of risk management practices in the Republic of Yemen, revealed that the most important types of risk facing the Yemeni banks are foreign exchange, credit, liquidity, and interest rate risk. Demirguc and Detragiache (1998) studied the determinants of banking crises in developing and developed countries and revealed that the crises tend to erupt when the growth is low and inflation is high, reflecting that the macroeconomic environment is weak; that is, the station in Yemen.

1.3 Critical Summary of the literature review

The previous studies concluded that the impact of financial risk on the financial performance of banking, which has been investigated in different studies related to specific financial risks like credit risk, liquidity risk, interest rate risk, foreign exchange rate risk, and its impact on return on assets and returns on equity under the research topic of this study as, Kani (2017), Mansour (2017), Poudel (2018), and Abbas, Iqbal, & Aziz (2019), reported that credit risk has a negative impact on performance. Musiega, Olweny, Mukanzi, & Mutua (2017) documented that credit risk has a negative relationship with the performance of banks. Maniagi (2018) found that there is a significant negative relationship with performance. While Nwanna, and Oguezue (2017) Reveal a negative and insignificant impact on profitability. Another study by Saeed and Zahid (2016) found that credit risk indicators are positively associated with the profitability of banks. And Bhattarai (2016) reported that credit risk indicators have a positive impact on the performance of banks. Finally, Almekhlafi, Almekhlafi, Kargbo, & Hu (2016) reported that non-performing loans negatively affect profitability. On the other hand, the impact of liquidity risk on the financial performance of banking also was examined in diverse studies as Haque and Wani (2015), Parvin, Chowdhury, Siddiqua, & Ferdous (2019), Pracoyo and Imani (2018), Wahdan (2017), Ali and puah (2019), Ejoh, Okpa, & Egbe, (2014). revealed that liquidity has a relationship with profitability. In contrast, the studies of Chen, Shen, Kao, & Yeh (2018), Kalanidis (2017), and Marozva (2015) found that liquidity risk has a negative impact on performance. The study of Alkhazaleh & Almsafir (2014). showed that reducing liquidity results improving profitability. But Mansour (2017) indicated that liquidity risk doesn't affect the financial performance of banks in Indonesia. While Almaqtari, Al-Homaidi, Tabash, & Farhan (2019), Charmler, Musah, Akomeah, & Gakpetor (2018), liquidity ratio had a significant positive impact on profitability. Finally, Aezzki (2010) documented that liquidity risk has an impact on profitability. In the same venue, the studies of Dawood and Al Ali (2017), Kolapo and Dapo (2015), Haque and Wani (2015) and Wahdan (2017) revealed that interest rate risk has no significant impact on the performance of banks. Likewise, Poudel (2018), and Ahmad (2015) found that interest rate risk has an insignificant positive effect on performance. While studies by Amaqtari, Al-Homaidi, Tabash, & Farhan (2019), Mansour (2017) and Maniagi (2018) have shown that interest rate risk has a positive and significant impact on financial performance. Likewise, Mansour (2017) and Dawood & Al Ali (2017) indicate that exchange rate risk does not affect the financial performance of banks in Indonesia. In contrast, Maniagi

(2018), and Maigua & Mouni (2016) found that foreign exchange risk has a signification positively relationship with performance. On the other hand, Almagtari, Al-Homaidi, Tabash, & Farhan (2019) revealed that the exchange rate has a significant impact on return on assets. In contrast, studies by Ahmed (2015), Osundina, Ademola, Olamide, & Moses (2016) found a negative effect on performance. Regarding financial risk and performance determinants, studies reported different impacts of bank-specific determinants and macroeconomic factors.

Anbar and Alper (2011) reported that bank size effect positively the profitability of banks. Acaravci and Calim (2013) found GDP has a positive and significant impact on profitability, ROA and ROE. Assets quality has a significant and negative impact on profitability for private banks and a positive impact for a foreign bank. Deposit has significant and positive impact on profitability for private bank and and non significant impact on foreign banks. Exchange rate has significant and positive impact on profitability for foreign banks and non significant impact for private bank. Cucinelli (2013) documented that asset quality has a significant impact on liquidity risk. Ahmed, Ahmed, & Naqvi (2011) found tangibility is the major predictor of liquidity risk in Islamic banks. Thiagarajan, Ayyappan, & Ramachandran (2011) reported the major credit risk determinants are non-performing assets, and GDP has a significant impact on credit risk for public and private. Vătavu (2014) found tangibility has a negative impact on return on assets (ROA), and there is a correlation between a bank's size and liquidity risk. Tehulu and Olana (2014), in their study, revealed bank size has a significant negative impact on credit risk. Operation efficiency has a significant positive impact on credit risk. Ownership has a significant positive impact on credit risk. Profitability has a significant correlation whit credit risk.

Samad (2015) reported that operation efficiency, liquidity risk, credit risk and deposits ratio has an impact on profitability. Twum, ZhongMing, Agyemang, Ayamba, & Chibsah (2021) found operation efficiency and GDP inversely related to credit risk. Melese and Laximikantham (2015) documented that bank size positive affects liquidity. Tona (2017) found loan to deposit ratio, non-performing loan, GDP, and inflation have significant positive effects on credit risk; GDP has a positive and significant effect on liquidity risk; bank size and operation efficiency have a non-significant effect on credit risk. Finally, tangible and impaired loans have a weak and adverse relationship with liquidity risk. Thiagarajan, Ayyappan, & Ramachandran (2011) revealed that bank-specific factors and macroeconomic factors influence commercial banks'

credit risk. Vodová (2011) reported inflation impacts liquidity, and the relationship between bank size and liquidity is ambiguous.

Gezu (2014) concluded loan to deposit significantly impacts non-performing loans, and inflation has a negligible negative impact on non-performing loans. Awojobi (2011) revealed that bank-specific and macroeconomic factors influence risk management. Tahtan and sharouki (2014) found a significant relationship between bank size and return on assets (ROA). Bu jama'ah and Al Larabi (2020) result highlighted the importance of the degree of controlling the degree of liquidity. Majd (2015) recommended the need to balance baking security and liquidity risk, credit risk, capital adequacy and return on assets. Omar and hamza (2020) found a negative impact of current deposits to total liabilities on profitability. Ragakada (2016) reported deposit ratio has a significant impact on profitably. Karume (2017) revealed an inverse significant relationship between profitability and liquid assets. Rima and yazid (2021) documented that in comparison between public and private banks financial performance performed close and liquidity ratio private banks perform over public banks. Higazy saeed and abumandeel (2021) found a relationship between credit risk and profitability. Al nuwairan (2021) concluded conventional banks are more aware of credit risk. Bozorg, Barzideh and Samadi (2018) found a positive relationship between credit risk and liquidity risk. EL and Ragab (2018) found conventional banks better manage the quality of assets and expenses, and Islamic better manage liquidity. Ullah (2019) results indicate Islamic banks more stable than conventional banks. Sharma, and Gounder, (2012). Found association between ROA and ROE ad deposit and unambiguous positive association between Operational efficiency (OE) and profitability

Al-Homaidi, Tabash, Farhan, & Almaqtari, (2019). results indicate that bank size, capital adequacy ratio, deposits ratio, operation efficiency ratio, and return on assets ratio have a significant positive effect on liquidity , while assets quality ratio, assets management ratio, return on equity ratio, and net interest margin ratio has a significant negative effect. Regarding macroeconomic issues, the findings suggest that interest and exchange rates considerably impact liquidity. Bateni, Vakilifard and Asghari, (2014) obtained results reveal a negative link between bank size and capital adequacy ratio and a positive relationship between Loan Asset Ratio (LAR), Return on Equity (ROE), Return on Asset (ROA), Equity Ratio (EQR), and capital adequacy ratio. The risk assets and deposit assets ratio do not affect the capital adequacy ratio. Abba, Zachariah, & Inyang, (2013) show a negative relationship between deposits and capital adequacy ratio,

Rashid, and Jabeen, (2016) indicate that operational efficiency, reserves, and overheads are key factors of conventional banks' performance, while operating efficiency, deposits, and market concentration are significant for Islamic banks' success. They further demonstrate that the influence of GDP and the lending interest rate on the performance of both types of banks is negative. of banks. Bintawim (2011). indicate that bank size has a negative effect on financial performance, whereas asset utilisation has a significant effect on the profitability of Saudi banks. In addition, rising bank operational expenses result in a rise in net special commission and a decline in ROA and ROE. Appiah (2015) revealed that credit risk only affects lending rates in the lowest income group and bank stability in the lowest middle-income bracket. However, credit risk has little effect on banks' average lending rate or stability in the upper middle-income category.

Stoyanova, (2016) reported that when the bank is solvent and profitable, This bank can maintain high equity capital by More non-performing loans. Masood, & Ashraf, (2015) documented positive impact report that banks with larger assets get higher profitability. Capital adequacy, loans to assets, and asset management results have a strong and important relationship with return on assets and return on equity, Credit volume and asset quality affect finances. The gearing ratio shows a positive effect on the return on assets and a negative relationship with the measure of profitability for return on equity.. Islamic banks carry higher risks than conventional banks.. Inflation does not affect bank profits much. The bank's profitability is not affected by liquidity, deposits and operating efficiency.

Dembel, (2020) show that management capability, performance quality, and earning quality affect ROA. On the other side, bank efficiency is affected by asset quality, earnings quality, liquidity, and age. Capital adequacy, GDP, and bank age do not affect ROA, and capital adequacy, managerial capability, and GDP do not affect the efficiency ratio. Ganii, (2014) determined factors influencing bank credit risk exposure is Inefficiency, profitability (ROE), Credit growth , and Deposit rate while Solvency, Loans to deposit ratio, Market power, profitability (ROA), and Reserve ratio are not statistically significant in connection to credit risk.

Abdelaziz, Rim & Helmi (2022) indicate that the profitability of the MENA banks is negatively and significantly sensitive to an increase in credit and liquidity risks. Olivia, Atahau& Martono (2022) results show that liquidity and credit risk have no effect on financial performance. Bank

size moderates the effect of liquidity and credit risk on financial performance. Afriyie et al. (2022) showed that the long-run estimates of market risk, credit risk and liquidity risk have a negative but significant impact on banks' performance. Hasmiana & Pintor (2022) Revealed that financial risk has a significant effect on operational efficiency, financial risk and operational efficiency partially have a significant effect on profitability, and Financial risk and liquidity partially have no significant effect on profitability through operational efficiency. Febrianto, Ratnawati & Riyadi (2022) revealed a negative relationship between credit risk and liquidity risk Annah (2022) concluded that credit risk and liquidity risk could negatively impact financial performance. Kaur & Sharma (2022) concluded that bank-specific factors, capital adequacy ratio, asset quality, and deposits, affect bank liquidity. Gwamna, Miko & Abdullahi (2022) results indicated that risk significantly influences financial performance. GABISO, W. (2022) showed that Bank branch number, Capital adequacy, deposit amount, loan amount, and non-interest income have a significant relationship with the profitability of the private commercial bank.

The above studies have done in different countries, times and sample size that selected from banking industries using different types of research, data, factors and variables have used, Where the results of risks were overlap and interdependent between the types of risks and their impact on performance, in addition to revealed a clear and direct results applicable to specific research area and confusing, disparate and difficulty tracking in anther results, that open new research questions found from analysis of the previous review and the future research mentioned in the previous studies.

Related to a specific area of research, few studies dealt with some aspects of financial and non-financial risk and their impact on the financial performance of Yemeni banks. Other studies dealt with the banking risks represented by credit risk and its impact on profitability, and it does not mention the other types of risk (Almekhlafi Almekhlafi, Kargbo, & Hu, 2016). A study by Al-Matari, Homaid & Alaaraj (2016) dealt with the risk management practices in Yemeni banks to study the differences between Islamic banks and conventional banks, which provided the important types of risk facing banking in Yemen but did not address the analytical side of financial risks and their impact on performance and what is the determinants of these risk (Abdou, Muslem, & Ismal, 2014). A study was also conducted to measure the impact of banking risks on the profitability of Yemeni commercial banks from 1999-2008. The study dealt with five of fourteen conventional banks in addition to excluding Islamic banks with the suggestion

of studying the main risks of banking in Yemen, which are under this study (Aezzki, 2010). The study on the financial stability of Islamic banks in 20 countries, including Yemen. The study was based on a composite measure of performance. The study was conducted in 2010, before the Yemeni crisis (Cihak & Hesse, 2010).

1.4 Research gap

To study the financial risk and performance of the banking sector in Yemen for the period 2010-2019. Furthermore, to determine the determinants of financial risks and financial performance and the impact of financial risk on the financial performance of the banking sector in Yemen, in addition, to finding the moderation role of bank type and ownership moreover the mediation effect of financial risk between bank-specific determinates and financial performance that have not been studied, and due to the scarcity of studies that address financial risks, and performance of banks in Yemen, and overlap, interdependence between the types of risks and their impact on performance in addition to the results of previous studies revealed confusing, disparate and difficulty track easily by investors and managers, that make the study is required. Based on the preceding, the variation concerning factors, characteristics and situations of study units, which is a focus on determinates of financial performance and limited studies on international aspects, clarify the determinants of financial risk, which makes the need to study the banking sector in Yemen. So this study aims to determine the factors that affect financial risks and the difference and impact of financial risks on performance between banks, taking into account three types of variables, namely financial risks, economic variables and most importantly, the factors specific to banks as well as non-financial factors for banks that will show accurate results applicable. The study differs from the previous studies in focusing on the important risk facing banks in Yemen and three types of variables in the post-crisis period. Which are the financial risks and microeconomic and bank-specific factors of the banking sector in Yemen?

1.5 Statement of Problem

After the global financial crisis, the Yemeni banking sector suffers from the liquidity crisis, credit risk, and exchange rate crisis in the Yemeni market, given the particular situation in Yemen since 2011, where the country has had an on-going political and economic crisis and civil war. So, there is a need for the banking sector to manage risk at present and in the future. Furthermore, it is to restore consumer confidence after it is exposed to severe financial risks and is unable to meet customers' requirements in some areas. Furthermore, there is a knowledge gap

due to a dearth of studies on financial risk, financial performance, and their determinants. The lack of studies that dealt with financial risks and performance on the one hand and the banking stability on the other hand has been attempted to address the following research questions.

1- **Is there a difference in financial risk and financial performance in the banking sector in Yemen?**

2- **What are the determinants of financial risk and financial performance in the banking sector in Yemen?**

3- **Does financial risk has an impact on the financial performance of the banking sector in Yemen?**

4- **Does bank size has a control effect on the relationship between financial risk and financial performance?**

5- **Is there a difference in the effect of financial risk on banks' performance in the banking sector in Yemen based on banks types and banks ownership structure of capital?**

6- **Is there a mediation role of financial risk between bank-specific determinants and financial performance?**

What distinguishes this study is that a comprehensive study on the critical issue is the risk and international focus on performance. It starts by determining the factors affecting financial risk, the differences in financial risk and performance between banks, and takes into account three types of variables, namely financial risks, economic variables, and most importantly, the banks' specific factors. In addition to study the impact of financial risk on financial performance, moreover the result of the study would be in the multi-group effect of moderating role of bank type and bank ownership structure and the mediating effect of financial risk between bank-specific determinants and financial performance.

1.6 Significance of the Study

Financial risk has become increasingly important in recent days. The critical factor in this area is that banks face significant challenges in a variety of competitive, operational, financial, and economic fields, as well as investor direction, which have exposed banks to a variety of risks in general, but particularly financial risks, which must be effectively analyzed and managed.

The most important thing here is the overlap and interdependence between types of risks and their impact on performance, and the difficulty of being easily tracked by investors and

managers. So, the importance of the study stems from different points in facilitating understanding, analyzing, and managing financial risks. It highlights the direction of performance and financial risk of banks in Yemen. It also helps management to avoid and manage risks that affect future performance. Furthermore, it helps management in risk-taking decisions and dealers to know the potential risks and returns of banks. It enables us to understand banks' risk-taking behavior and find out the relationship between risk and the performance of the banks themselves. Thus, risk managers must have a comprehensive understanding and perception of risks and measurement methods in order to control any obstacle that may face the main strategy of the bank's objectives and minimize any potential loss.

1.7 Objectives of the Study

1. To determine the differences in financial performance and financial risk in the banking sector in Yemen.

Sub objectives.

- To distinguish the differences in financial performance and financial risk based on banks types.

- To distinguish the differences in financial performance and financial risk based on banks' ownership structure.

2. **To identify bank-specific determinants of financial risk and financial performance of the banking sector in Yemen.**

   Sub objectives

- To identify the impact of bank-specific determinants of financial risk of banking sector in Yemen

-To identify the impact of bank-specific determinants of financial performance of banking sector in Yemen.

3. **To identify the impact of macroeconomic factors on financial risk and financial performance of the banking sector in Yemen.**

Sub objectives

-To identify the impact of macroeconomic factors on financial risk of banking sector in Yemen.

-To identify the impact of macroeconomic factors on financial performance of banking sector in Yemen.

4. **To determine the impact of financial risk on the financial performance of the banking sector in Yemen.**

Sub objectives

- To determine the impact of credit risk on the financial performance of the banking sector in Yemen.

- To investigate the impact of liquidity risk on the financial performance of the banking sector in Yemen.

- To determine the impact of foreign exchange risk on the financial performance of banks in Yemen.

5. **To determine the control effects of (bank size) on the relationship between financial risk and financial performance in the banking sector in Yemen.**
6. **To determine the moderating role of banks types and banks ownership on the relationship between financial risk and financial performance in the banking sector in Yemen.**
7. **To determine the mediating role of financial risk between bank-specific factors and financial performance in the banking sector in Yemen.**

1.8 Research Hypotheses.

H_1: There is a significant difference in financial performance between Islamic banks and conventional banks.

H_{1a}: There is a significant difference in return on assets (ROA) between Islamic banks and conventional banks.

H_{1b}: There is a significant difference in return on equity (ROE) between Islamic banks and conventional banks

H_2: There is significant difference in the financial performance of banks based on the ownership of banks.

H_{2a}: There is a significant difference in return on assets (ROA) of banks based on the ownership of banks.

H_{2b}: There is a significant difference in return on equity (ROE) of banks based on the ownership of banks.

H_3: There is a significant difference in financial risk between Islamic banks and conventional banks.

H_{3a}: There is a significant difference in Credit risk (CR1) between Islamic banks and conventional banks.

H_{3b}: There is a significant difference in Credit risk (CR2) between Islamic banks and conventional bank.

H_{3c}: There is a significant difference in Liquidity risk (LR1) between Islamic banks and conventional banks.

H_{3d}: There is a significant difference in Liquidity risk (LR2) between Islamic banks and conventional banks.

H_{3e}: There is a significant difference in Foreign exchange risk (FXR) between Islamic banks and conventional banks.

H_4: There is a significant difference in banks' financial risk based on the bank's ownership.

H_{4a}: There is a significant difference in Credit risk (CR1) based on the bank's ownership.

H_{4b}: There is a significant difference in Credit risk (CR2) based on the bank's ownership.

H_{4c}: There is a significant difference in Liquidity risk (LR1) based on the bank's ownership.

H_{4d}: There is a significant difference in Liquidity risk (LR2) based on the bank's ownership.

H_{4e}: There is a significant difference in Foreign exchange risk (FXR) based on the bank's ownership.

H_5: There is a significant impact of bank-specific determinants on the credit risk (CR1 and CR2) of the banking sector in Yemen.

H_{5a}: There is a significant impact of bank-specific determinants on the credit risk (CR1) of the banking sector in Yemen.

H_{5b}: There is a significant impact of bank-specific determinants on credit risk (CR2) of the banking sector in Yemen.

H_6: There is a significant impact of bank-specific determinants on the Liquidity risk (LR1) and (LR2) of the banking sector in Yemen.

H_{6a}: There is a significant impact of bank-specific determinants liquidity risk (LR1) of the banking sector in Yemen.

H_{6b}: There is a significant impact of bank-specific determinants on the Liquid risk (LR2) of the banking sector in Yemen.

H_7: There is a significant impact of bank-specific determinants on the Foreign exchange risk (FXR) of the banking sector in Yemen

H_8: There is a significant impact of bank-specific determinants on the financial performance of the banking sector in Yemen.

H_{8a}: There is a significant impact of bank-specific determinants on the retune on assets (ROA) of the banking sector in Yemen**.**

H_{8b}: There is a significant impact of bank-specific determinants on the retune on equity (ROE) of the banking sector in Yemen.

H_9: There is a significant impact of Macroeconomic factors on the financial risk of the banking sector in Yemen.

H_{9a}: There is a significant impact of Macroeconomic factors on the credit risk (CR1) of the banking sector in Yemen.

H_{9b}: There is a significant impact of Macroeconomic factors on credit risk (CR2) of the banking sector in Yemen.

H_{9c}: There is a significant impact of Macroeconomic factors on liquidity risk (LR1) of the banking sector in Yemen.

H_{9d}: There is a significant impact of Macroeconomic factors on liquidity risk (LR2) of the banking sector in Yemen.

H_{9e}: There is a significant impact of Macroeconomic factors on foreign exchange risk (FXR) of the banking sector in Yemen.

H_{10}: There is a significant impact of Macroeconomic factors on financial performance of the banking sector in Yemen.

H_{10a}: There is a significant impact of Macroeconomic factors on return on assets (ROA) of the banking sector in Yemen.

H_{10b}: There is a significant impact of Macroeconomic factors on return on equity (ROE) of the banking sector in Yemen.

H_{11}: There is a significant impact of credit risk (CR1 and CR2) on financial performance of the banking sector in Yemen.

H_{11a}: There is a significant impact of credit risk (CR1 and CR2) on return on assets (ROA) of the banking sector in Yemen.

H_{11b}: There is a significant impact of credit risk (CR1 and CR2) on return on equity (ROE) of the banking sector in Yemen**.**

H_{12}: There is a significant impact of liquidity risk (LR1 and LR2) on financial performance of the banking sector in Yemen.

H_{12a}: There is a significant impact of liquidity risk(LR1 and LR2) on return on assets (ROA) of the banking sector in Yemen.

H_{12b}: There is a significant impact of Liquidity Risk (LR1 and LR2) on return on equity (ROE) of the banking sector in Yemen.

H_{13}: There is a significant impact of Foreign exchange risk (FXR) on financial performance of the banking sector in Yemen.

H_{13a}: There is a significant impact of Foreign exchange risk (FXR) on return on assets (ROA) of the banking sector in Yemen.

H_{13b}: There is a significant impact of Foreign exchange risk (FXR) on return on equity (ROE) of the banking sector in Yemen.

H_{14}: Bank size has an control effect in the relationship between financial risk and financial performance.

H_{15}: Bank type has is a statistically significant difference in the effect of financial risk on financial performance in the banking sector.

H_{15a}: There is a statistically significant difference in the effect of credit risk on ROA between various banks types

H_{15b}: There is a statistically significant difference in the effect of credit risk on ROE between banks types.

H_{15c}: There is a statistically significant difference in the effect of liquidity risk on ROA between banks types.

H_{15d}: There is a statistically significant difference in the effect of liquidity risk on ROE between banks types.

H_{15e}: There is a statistically significant difference in the effect of foreign exchange risk on ROA between banks types.

H_{15f}: There is a statistically significant difference in the effect of foreign exchange risk on ROE between banks types

H_{16}: Bank ownership structure has statistically significant different in the effect of financial risk on financial performance in banking sector.

H_{16a}: Bank ownership structure has statistically significant different in the effect of credit risk on ROA in banking sector.

H_{16b}: Bank ownership structure has statistically significant different in the effect of credit risk on ROE in banking sector

H_{16c}: Bank ownership structure has statistically significant different in the effect of liquidity risk on ROA in banking sector

H_{16d}: Bank ownership structure has statistically significant different in the effect of liquidity risk on ROE in banking sector.

H_{16e}: Bank ownership structure has statistically significant different in the effect of foreign exchange risk on ROA in banking sector

H_{16f}: Bank ownership structure has statistically significant different in the effect of foreign exchange risk on ROE in banking sector.

H_{17}: financial risk has a statistical significance mediation effect on the relationship between bank-specific determinants and return on assets (ROA).

H_{17a}: credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA.

H_{17b}: Credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA

H_{17c}: liquidity risk LR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA

H_{17d}: liquidity risk LR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA.

H_{17e}: Foreign exchange risk FXR has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**.**

H_{18}: financial risk has a statistical significance mediation effect on the relationship between bank-specific determinants and return on equity (ROE).

H_{18a}: credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.

H_{18b}: credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.

H_{18c}: liquidity risk LR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.

H_{18d}: Liquidity risk LR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.

H_{18e}: foreign exchange risk FXR has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.

1.9 Scope of Study

1.9.1 Objectivity border.

The scope of this research is to study financial risk and financial performance. it focuses on the financial risk of the banking sector in Yemen and covers three types of variables financial risk variable (liquidity risk, credit risk, foreign exchange risk), macroeconomic factors (GDP, inflation), and bank-specific factors (Tangibility (TNA), Impaired loan (IML), Deposits (DR), Assets Quality (AQ), and Operation Efficiency (OE)). Other factors are taken into account (bank size,) as control, (banks' ownership, and banks types) as moderator variables, in addition, to finding out the mediating impact of financial risk in the relationship between the bank-specific factor and financial performance.

1.9.2 Spatial boundaries.

The study will be done in the republic of Yemen to cover all 16 banks operating in Yemen and located their headquarters in the capital of Yemen SANAA and ADEN using the classification of central bank of Yemen (**Reserve Bank**) which is Islamic banks, and Conventional banks in addition to banks ownership of capital (government, mixed, private, and foreign banks). The study excluded the central bank of Yemen which is the reserve bank and two more banks one of which did not provide any services and the other is under liquidation.

1.9.3 Temporal boundaries.

The period of study is the period after the Yemen crisis till 2019 ten years of financial transactions for the banks operating in Yemen from 2010 to 2019 where the financial data of 2020 is not available at the date of collecting data for the study.

2. Theoretical Framework

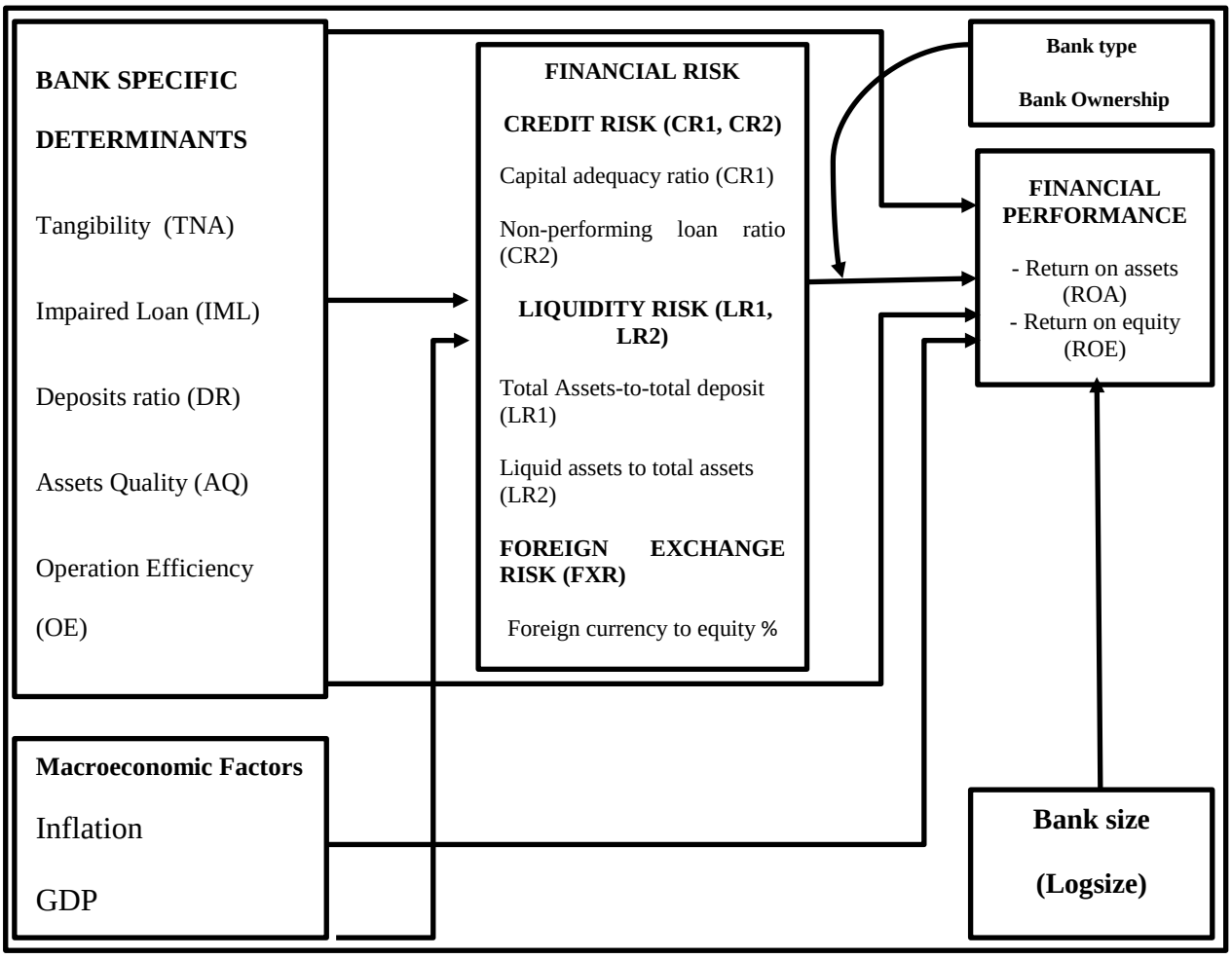
A theoretical framework refers to the theory that a researcher chooses to guide the research. Thus, a theoretical framework is the application of a theory, or a set of concepts drawn from one and the same theory, to offer an explanation of an event, or shed some light on a particular phenomenon or research problem (Imenda, 2014). The theoretical framework provides a structure for what to look for in the data, for how you think of how what you see in the data fits together, and helps you to discuss your findings more clearly, in light of what existing theories say. It helps you to make connections between the abstract and concrete elements you observe in your data (Kivunja, 2018).

So in this section, there are some selected theories related to financial risk as the theory of financial intermediaries, which are traditional theories of intermediation based on transaction costs and asymmetric information. They are designed to account for institutions that take deposits or issue insurance policies and channel funds to firms (Allen and Santomero1997). Financial distress theory which is a condition in which a company or individual cannot generate revenue or income because it is unable to meet or cannot pay its financial obligations. This is generally due to high fixed costs, illiquid assets, or revenues sensitive to economic downturns, and Risk management theory which is to outline the theoretical outlook in managing contemporary bank risks; its focus is on market and credit risk. The theory suggests that market and credit risk determines the main source of value loss as market risk is a change in net asset value that will have a direct or indirect impact on bank survival due to changes in the interest rate, exchange rate, stock prices, and commodities

3. Conceptual Framework:

Conceptual framework is an analytical tool that can be graphical representation of the link between variables in the study based on ideas developed by researchers' perception for making conceptual distinctions and organize ideas of the research applied in different categories of work where an overall picture is needed. The following is the structure graph of variables in the present study.

Illustration 1. Conceptual Framework of Study



Source: Own Research Model

Table: 2 Operation Definitions of Variables and Measurement

Variables	Parameters	Symbols	Measurement
Bank specific determinants (independent variable) *internal factors	Tangibility	TAN	fixed asset to total asset.
	Impaired loan	IML	Loan loss provision to gross loans
	Deposits ratio	DP	Deposit to total assets
	Assets quality	AQ	Loan To Total Assets
	operation efficiency	OE	Total operating expenses to total assets
Macroeconomic factors (independent variable)	GDP	GDP	Annual GDP Growth Rate

*external factors	Inflation	Inflation	Annual Inflation Rate
Financial risk	Credit Risk	CR1	Capital Adequacy Ratio
	Credit Risk	CR2	Non Performing Loan Ratio
	Liquidity Risk	LR1	Total Assets-To-Total Deposit
	Liquidity Risk	LR2	Liquid Assets To Total Assets
	Foreign Exchange Risk	FXR	foreign currency to equity %
Control variable	Bank Size	logsize	Logarithm of Total Assets of Bank
(Moderator variables)	Banks types	Banks types	Conventional And Islamic
	Banks Ownership structure of capital	Banks Ownership	Government, mixed, private and foreign banks
Financial performance (dependent variable)	Return on assets	ROA	Net Income / Total Assets
	Return on equity	ROE	Net Income / Total Equity

Source: Conceptual Framework

3.1 Bank Specific Determinants

"Bank-Specific (Internal) Variables: The bank-specific variables are variables that related to the decision of management and banks policy objectives" (Masood, Ashraf, & Turen, (2015), so to determine the impact of bank-specific determinants on financial risk and financial performance the following factors has been used

Tangibility. It is a significant indicator to measure financial position based on fixed assets**.** The fixed asset measures it to the total asset ratio. Ahmed, Ahmed, & Naqvi, (2011). Discovered a negative correlation between tangibility and liquidity risk in his research. But a significant increase in the proportion of fixed assets to total assets will completely erode a bank's liquidity position, resulting in a reduced liquidity ratio and an increase in liquidity risk. Tona, (2017). Tangibility is measured using the ratio of fixed assets to total assets. However, the massive increase in the level of a fixed asset as a proportion to the total asset will totally erode the liquidity position of a bank i.e. lower liquidity ratio, which results in increasing liquidity risk Bank tangibility measured by fixed assets to total assets. (Shah, Hijazi, & Javed, 2004; Ahmed,

Ahmed, & Naqvi, 2011; Çekrezi, 2013; ; Boadi, Antwi, & Lartey, 2013; Baloch, Ihsan, Kakakhel, & Sethi, 2015; Al Ani, & Al Amri, 2015; Tona, 2017; Xuezhou, Hussain, Hussain, Saad, & Butt, 2020)

Impaired loan: when the creditor cannot collect all the interest and principal payments due. The measurement of an impaired loan uses Loan loss provisions for gross loans where the loan loss provisions are retroactive and pro-cyclical. They are minimal before financial crises and rise dramatically as losses increase. National and international authorities are contemplating approaches to encourage forward-looking provisioning, which would result in banks entering periods of poor credit quality with larger reserves. Larger reserves alleviate the pressure on bank earnings and capital as loan losses materialize. Angklomkliew, George, & Packer, (2009). in the case of Yemen, this bad lone is important because is usually occurs during the economic depression period and a natural disaster, so the measurement of an impaired loan in this study is as in (Messai, & Jouini, 2013; Appiah, 2015; Tettey, 2017).

Deposit Asset Ratio: these are the most common form of external finance, and they are assumed to be relatively inexpensive due to the restricted investment possibilities available to savers and others. As a result, a larger ratio is likely to positively influence a company's profitability. Therefore, the sign cannot be predicted in advance.(Sharma and Gounder, 2012). that is what is happening in Yemen with extremely no financial market at all, so the measurement of deposit assets ratio used is a total deposit to total assets (Bintawim (2011; Abba, Zachariah, & Inyang, 2013; Abba, Zachariah, & Inyang, 2013; Bateni, Vakilifard, & Asghari, 2014; Bateni, Vakilifard, & Asghari, 2014; Rashid, & Jabeen, 2016 ; Al-Homaidi, Tabash, Farhan, & Almaqtari, 2019;).

Assets Quality: This is a significant indicator of a company's financial strength. Asset quality maintenance is an essential aspect of banking. The primary objective of monitoring asset quality is to determine the proportion of non-performing assets relative to total assets. Altan, Yusufazari, & Bedük, 2014, October) Used Fixed assets to total asset Where Masood & Ashraf, (2012). used two ratios to assess the quality of assets, loans as a percentage of total assets and non-performing loans as a percentage of total assets. The loan-to-total-asset ratio measures the bank's income source and is intended to favourably impact bank profitability unless the bank is at an unacceptably high level of risk. (Seelanatha, 2012; Almaqtari, Al-Homaidi, Tabash, &

Farhan, 2019: Al-Homaidi, Tabash, Farhan, & Almaqtari, 2019 ; Sinjilawi, 2020; Dembel, 2020;).

Operating Efficiency: Reflects the ability of bank management. The lower ratio leads to better management efficiency; it's represented by total operating expenses to total assets. So operational efficiency measures how much costs are incurred during a particular economic or financial activity, and lower cost equals greater efficiency. "Operating expense to total assets. It is expected when a bank has higher operating expense per dollar assets, the profitability of a bank declines." Samad, (2015). So measurement used in the study is Operating expense to total assets (Bintawim 2011; Tehulu, & Olana, 2014; Ganii, 2014; Samad, 2015; Almarzoqi, & Naceur, 2015; Rashid, & Jabeen, 2016; Al-Homaidi, Tabash, Farhan, & Almaqtari, 2019; Swami, Nethaji, & Sharma, 2022).

3.2 Macroeconomic Variables

Macroeconomic (External) Variables: The macroeconomic variables expectedly affect the bank's profitability. As external independent variables used in the existing studies, these variables are **Inflation, which** indicates the general rise in the price level and **GDP:** Gross Domestic Product is the market value of all locally recognized and final goods and services produced in a country within a specified period of time. (Căpraru, & Ihnatov, 2014; Saeed, 2014; Duraj, & Moci, 2015 ; Ali, 2015 Hong & Abdul Razak, 2015; Amzal, 2016; Yahya, Akhtar, & Tabash, 2017 ; Trad, Trabelsi, & Goux, 2017).

3.3 Financial Risk

Financial risk is any of various types of risk associated with financing, including financial transactions that include company loans in risk of default; often, it is understood to include only downside risk, meaning the potential for financial loss and uncertainty about its extent. Financial risk is defined according to the source of uncertainty to credit risk, market risk, liquidity risk, and interest rate risk. The three important risks have been selected to study and divided into subclasses relative to the sacrifice event that trigger losses here.

Credit Risk is the risk of losses due to borrowers' default or deterioration of credit standing. Default risk is the risk that borrowers fail to comply with their debt obligation. Credit risk refers to the deterioration of the borrower's credit standing, which does not imply default but involves a higher likelihood of default. The first measurement of Credit Risk in this study is the capital adequacy ratio (Isanzu, 2017; Shrestha, 2017; Gizaw, Kebede & Selvaraj, 2015). Moreover, the

second proxy is the Non-performing loan ratio (Shingjergji & Hyseni, 2015; Abiola & Olausi, 2014; Gizaw, Kebede, & Selvaraj, 2015; Isanzu, 2017; Shrestha, 2017; Musiega, Olweny, Mukanzi & Mutua, 2017).

Liquidity risk: is broadly defined as the risk of not being able to raise cash when needed. So total Assets-to-total deposit is the first proxy of liquidity risk (Altan, Yusufazari & Bedük, 2014; Mwangi, 2014). Furthermore, the second proxy in this study used is Liquid assets to total assets (Dinger, 2009; Ferrouhi, 2014; Mwangi, 2014; Salim & Bilal, 2016; Musiega, Olwney, Mukanzi & Mutna, 2017; Chen, Shen, Kao & Yeh, 2018).

Foreign Exchange Risk: Is the risk of incurring losses due to fluctuation of exchange rates. The variation of earnings results from the indexation of revenues and charges of exchange rates. So currency risk is the loss from fluctuations in foreign exchange rates related to the bank's assets and liabilities. (Mohandes & Ahmed. (2018).

3.4 Control and Moderating Variable

Bank size: is measured as the logarithm of total assets of the bank and used as a control variable as in (Jadah & Adzis, 2016; Bhattarai, 2016; Charmler, Musah, Akomeah & Gakpetor, 2018; Chabachib, Yudha & Udin, 2020; Khan, Alghorbany, Djihad, Messaouda & Ellahi, 2020; Hersugondo, Anjani & Pamungkas, 2021).

Banks Types: as in the low of the central bank of Yemen (reserve bank of Yemen), there are two types of banks operating in Yemen with separate low related to each type which is Islamic and conventional Gashtem (2021) used type of bank as a moderator variable between Islamic and conventional banks, where some used dummy variables for categorical Islamic and conventional banks as Al-Awlaqi & Aamer, (2022), and others used the comparative study between n Islamic and conventional banks (Gashtem, 2021; Al-Awlaqi & Aamer, 2022)

Ownership Structure: is defined as a concentration of ownership (stats, private, foreign) and ownership types in the form of largest shareholders if its government, family, institution and foreign. In this study, the classification of the central bank of Yemen (reserve bank of Yemen) is adopted, which is the banks' ownership of capital (government-owned, mixed-owned, private owned and foreign-owned banks). (Ganii, 2014; Chabachib, Yudha & Udin, 2020).

3.5 Financial Performance:

Financial performance is a subjective measure of how well a firm can use assets from its primary business mode and generate revenues. The term is also used to measure a firm's overall

financial health over a given period. So It is commonly measured by return on assets and returns on equity.

Return on Assets: (ROA) is an indicator that measures a company's profitability relative to its total assets; Return on assets gives an idea of how efficiently management uses its assets to generate profits. Return on assets is calculated by dividing the company's annual profit by its total assets by percentage (Wang, 2002 ; Haugland, Myrtveit & Nygaard, 2007; Salim & Yadav 2012; Vătavu, 2015; Rostami, Rostami & Kohansal, 2016; Zabri, Ahmad & Wah, 2016; Ozili & Uadiale, 2017; Bian & Deng, 2017; Ekinci & Poyraz, 2019; Erdogan & Yamaltdinova, 2019)

Return on Equity: (ROE) This ratio represents the return that the owners have achieved on investing their money in the company. It is considered one of the most important profitability ratios used. These terms reflect the amount of profit companies make from their asset investments and the efficiency with which management employs the money provided by investors. (Wang, 2002; Vătavu, 2015; Bian & Deng, 2017; Ozili & Uadiale, 2017 Erdogan & Yamaltdinova, 2019).

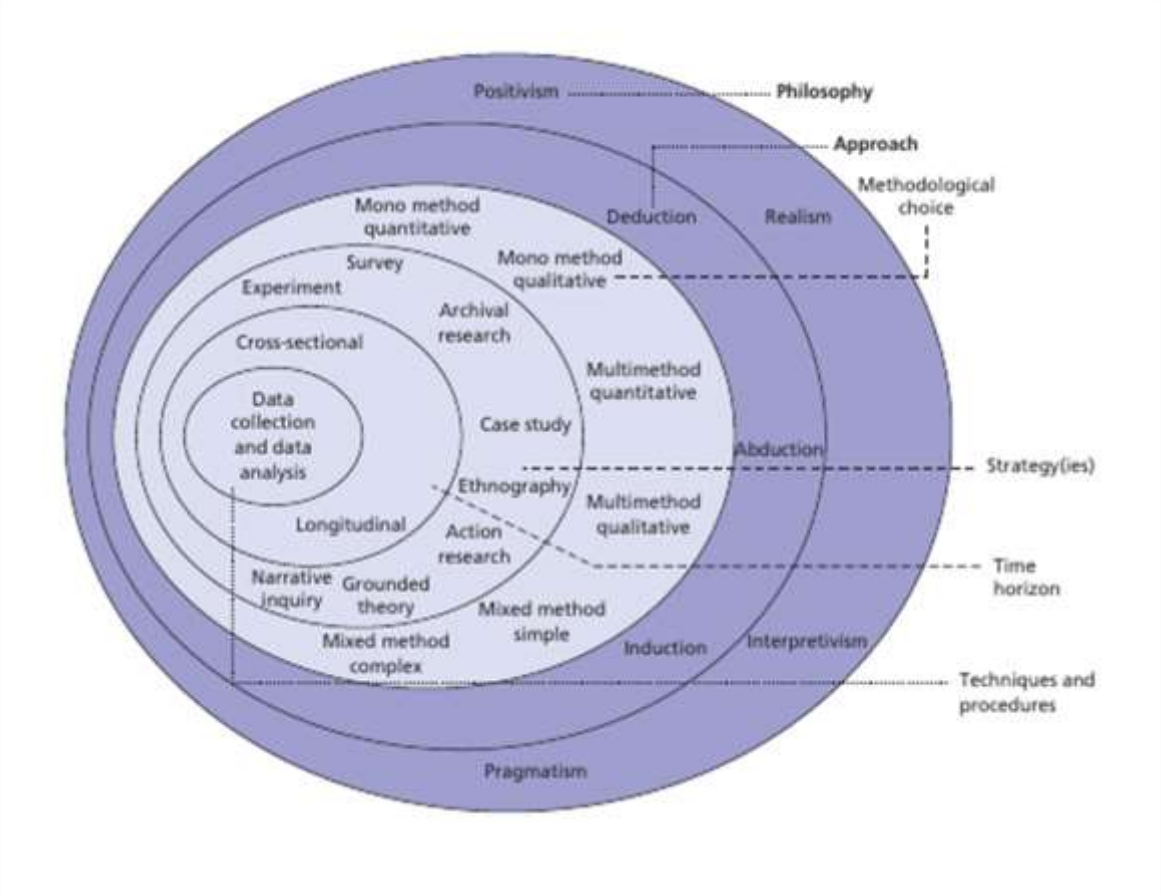
4. Research Methodology.

Research methodology refers to a set of special tools, methods, and techniques used to examine knowledge and phenomena discovered or complement some theories and information, depending on the synthesis of specific assertions, and must be measurable and deductible. The principles and procedures of logical thinking processes that are applied to a scientific investigation are referred to as research methodology, and thus research methodology can be considered the overall strategy to achieve the research goal and objectives. Research methods, on the other hand, are simply tools. Various research methods can thus be used within research methodology to achieve research and its objectives. There are three major dimensions to consider when discussing research methodology: research philosophy, research logic, and data. The researcher's philosophical position will strongly influence the logic of the research, as well as the data required for the research and data analysis (Sutrisna, (2009)).

This section focuses on the determining sources, methods, and processes of data collection in addition to methods of analysis that suit the data according to its types on the one hand and appropriate techniques to achieve the objectives of research on the other hand.

Saunders' research onion is a helpful tool for considering methodology in a more comprehensive manner. It assists you in comprehending the choices that are required in terms of the design of the research project. At a minimum, the research onion is a model that Saunders and his colleagues designed in 2007 to illustrate the decision of the different steps that a researcher needs to take or go through in order to create an efficient technique.

Illustration 2. Saunders' Research Onion.



Source: Saunders, Lewis and Thornhill, 2007.

4.1 Research Design

The approach is Quantitative which is empirical in nature, and generally quantitative associated with positivism, the study used mono method quantitative to analyze financial risk and study a significant relationship with financial performance using panel data analysis with repeated observations of a sufficient number of cross-sections, where panel data analysis enables the researcher to examine the dynamics of change using short time series. A research philosophy is

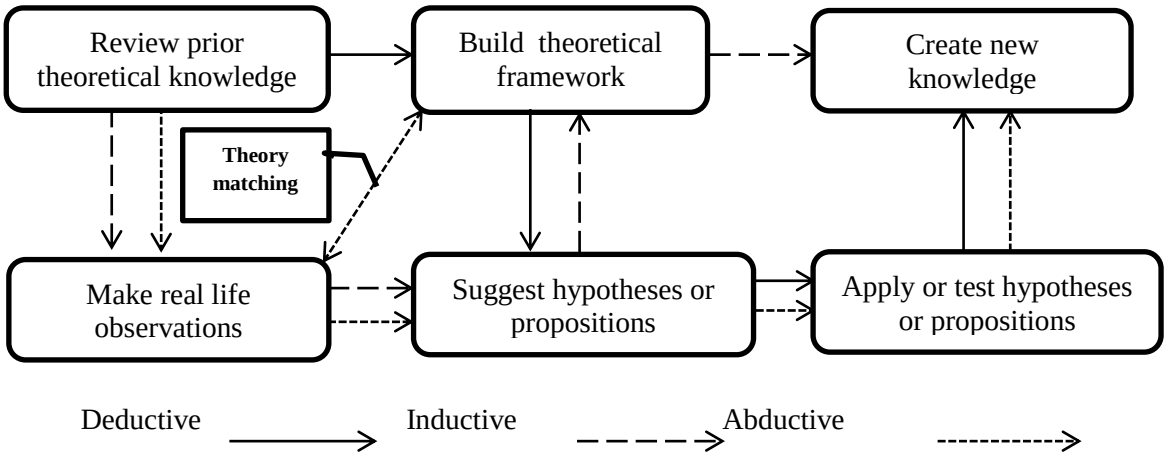
a belief or an idea regarding the collection, interpretation, and analysis of data collected. the philosophy of this study is based on positivist assumptions. So research test and confirm hypotheses using a deductive approach.

4.2 Research Approach

"Quantitative research is usually associated with a deductive approach, focusing on using data to test a theory. However, it may also incorporate an inductive approach, where data are used to develop theory" (Saunders, Lewis & Thornhill, 2007, p. 142). The research is quantitative, so it is deductive.

In the field of scientific research, several forms of inference include abduction, deduction, and induction, where the deductive method starts with a theory, then moves on to the development of hypotheses based on that theory, followed by the gathering and examination of facts to test those hypotheses and inductive method, they begin with a collection of observations, and from those specific experiences, they move on to a more general set of propositions regarding those experiences. In other words, they move from empirical evidence to theoretical explanations or from the particular to the general. While the concept of abduction can be considered as a combination or synthesis of deduction and induction, it can be taken as a subject that is equally relevant to research methodologies (Karlsen et al., 2021).

Illustration 3: Research Approach



Sources: Andreas Wieland scmresearch.org based on Spens, and Kovács, 2006.

4.3 Total Population Sampling

"The population refers to the entire group of people events, or things of interest that the researcher wishes to investigate" (sekaran and bougie 2015, p240). Because of the small size of population and classification of banks in Yemen, the current study will be used the units of the sample are all commercial banks operating in Yemen, which is sixteen in number excluding only Yemen gulf bank , so the Population sample has been presented in table 3 below:

Table 3. Total Population Sampling

Bank Type		Banks names	Ownership of Capital	Capital Paid (in millionYR)
Commercial banks	Conventional banks	Yemen bank of reconstruction & development	51% Government ,and 49% Private sector	26375.40
		National bank of Yemen	100% Government	14349.60
		Cooperative & agricultural credit bank	100% Government	23093.50
		International bank of Yemen	85% Private sector ,and 15% Foreign	28157.60
		Yemen commercial bank	90% Private sector , and 10% government	9335.60
		Yemen Kuwait bank	100% Private sector	7054.70
		Al amal microfinance bank	45% Government,35% Foreign , and 20% Private sector	4882.40
		Arab bank limited	100% Foreign	11375.40
		Qatar national bank	100% Foreign	7127.50
		Al-Rafidain bank	100% Foreign	9265.10
		United bank limited	100% Foreign	8499.90
		Tadhamon international Islamic bank	96.70% Private sector, and 3.30% Foreign	23260.90
	Islamic banks	Saba Islamic bank	85% Private sector and 15% Foreign	9824.20
		Islamic bank of finance and investment	73.50% Private sector, 22% Foreign , and 4.50%Government	4536.70
		Shamil bank of Yemen & Bahrain	57% Private sector ,and 43% Foreign	6209.60
		Al kuraimi Islamic microfinance bank	100% Private sector	20843.50

Source: The Report of Central Bank of Yemen, 2020

- Ownership of capital as in CBY report

The listed banks under study in the above considered all banks operating in Yemen which fulfilled the criteria to study requirements. The first is the availability of data, and the second, banks at least operating for the last ten years till the date of the study, and at least the contribution of bank or the capital pied up till the date of the study is 2%.

4.4 Data Techniques and Procedures

4.4.1 Data Collection methods.

The Source of data is Financial information collected from financial statements published and reports of central banks of Yemen, websites of banks, and other specialist websites. Also, Specialist books and magazines. In addition to theses written on this subject, which have been utilized in the preparation of the theoretical part of this study.

4.4.2 Data Analysis Techniques

Data analysis comprises collecting, cleaning, and arranging data. These processes, which include data analysis tools, prepare data for corporate use. SPSS and AMOS are used to analyze data using the following statistical tool, descriptive and inferential, where Analytical models are statistical or mathematical models in the equation to estimate and find accurate results. It comes in different forms descriptive, diagnostic, predictive, and prescriptive. So statistics used in this study are as follows:

4.4.2.1 Descriptive Statistics and other Assumptions :

To determine the statistical properties and to fulfil the assumption of statistical techniques used in the study, descriptive statistics reveal the maximum, minimum, mean, and standard deviation, in addition to the assumptions of independence of variables and observations, outliers, skewness, and kurtosis, Correlation and multicollerantty, homosecedasticity are cheeked.

4.4.2.2 Analysis of variance.

In this study, two tests of variance are used; the first is an independent sample t-test to compare two groups and instead of the t-test for comparing more than two groups, use one-way ANOVA.

4.4.2.3 Regression analysis.

In this study, regression analysis was carried out in five sections using multiple and simple regression.

1- The impact of bank-specific determinants on financial risk.

2- The impact of bank-specific determinants on financial performance.

3- The impact of macroeconomic factors on financial risk.

4- The impact of macroeconomic factors on financial performance.

5- The impact of financial risk on financial performance.

The regression equation is $Y = \text{constant} + \beta 1\ X1(it) + \beta 2\ X2(it) + \text{Error}$

4.4.2.4 Moderation affects analysis

In this study, multi-group analysis was used in two sections to determine difference in the effect of financial risk on financial performance where.

1- Moderation effect of bank types.

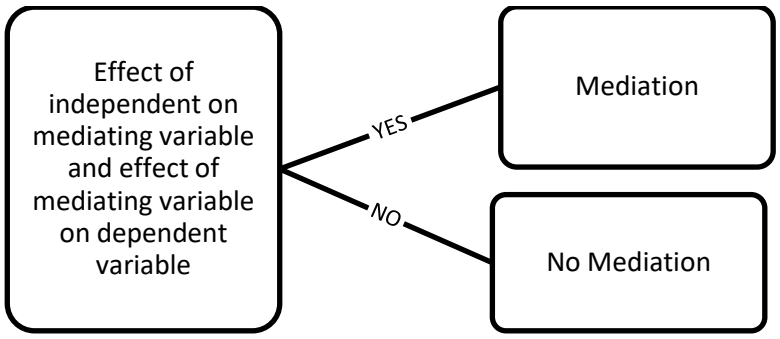
2- Moderation effect of bank ownership.

4.4.2.5 Mediation effect analysis

The mediating effect is the variable that meditates the relationship where the mediating transfers the effect from independent through mediate to independent.

The relevance of the indirect influence when independent variable has a significant effect on mediating variable and mediating variable has a significant effect on a dependent variable; if not or then we conclude there is no mediation effect as in Illustration 2., whatever the direct effect from the independent variable to the dependent variable, which only represents the direct effect only.

Illustration 4. Mediation Effect test



Source: author' own based on , Zhao, el al. (2010).

So the study determined the mediating effect of financial risk between bank-specific factors and financial performance in the banking sector in Yemen

5. Implication and practical application.

According to the importance of research and objectives

Managers: It will help understand and manage the causes of financial risk and the impact on financial performance.

Policies: It will help the banks to formulate the policies to reduce the financial risk and improve the performance and stability

Stockholders: To give an insight into the banking sector situation and financial position

Theory: It will try to fill the gap in the literature due to the scarcity of studies on the financial risk and in banking in Yemen.

6. Limitation of the Study

The study is based only on three types of financial risk variables (credit risk (CR1 and CR2), liquidity risk (LR1 and LR2), and foreign exchange risk (FXR)), five bank-specific determinates (Tangibility (TNA), Impaired loan (IML), Deposits (DR), Assets Quality (AQ), and Operation Efficiency (OE)), and two macroeconomic factors (GDP and inflation).

The study is based on secondary data only and limits the time to ten years, from 2010 to 2019, and the difficulties in getting data from the banks themselves, which some are not published; moreover, some of the data only from the central bank is obtained.

7. Sequence of Chapters

Chapter1: Introduction

It includes the background of the study, statement of the problem, the significance of the study, objective of the study, research hypothesis, scope of the study, research methodology, research philosophy, research design, research approach, research population, data analysis techniques, finally limitation and difficulties of study and chapters design.

Chapter 2: Review of Literature

This chapter deals with an introduction to the needs of the literature review, a literature review related to the international perspective, a literature review related to the Yemeni perspective and a critical summary review of the literature. Finally, the research gap.

Chapter 3: Theoretical and Conceptual Framework

The first section is an introduction to the banking sector in Yemen, an overview of Islamic and conventional banks and government policy, the structure of the banking sector in

Yemen, major indexes of banks in Yemen, and finally, the challenges of the banking sector in Yemen. The second section is about the current economic situation. The third section is the theoretical framework, theories, Basel 1,2,3 and Risk management standards. The fourth section is the conceptual framework; it is in two sub-sections: introduction to risk management, definitions, objectives, process, benefits, and financial risk sources and challenges. The other section is the conceptual framework of the study, and operational definitions of variables and measurement of bank-specific determinants, financial risk and macroeconomic.

Chapter 4: Analysis and Interpretation

analysis of variances in financial risk among the banks, determinants of credit risk, liquidity risk, foreign exchange risk, , impact of credit risk, liquidity risk, foreign exchange risk on the financial performance of banking sector in Yemen, moderating role of bank type and bank ownership on the relationship between financial risk and financial performance, and mediating role of financial risk on the relationship between bank-specific determinant and financial performance.

Chapter 5: Findings and Conclusion

Variances in financial risk and financial performance, determinant of financial risk and financial performance, the impact of financial risk on performance, moderating effect of bank type and bank ownership and mediating of financial risk in the relationship between bank-specific determinants and banks performance, recommendation , contribution to knowledge, conclusion, and area for further research.

8. Major Findings

8.1 Introduction

The general objective is to study financial risk and financial performance of the banking sector in Yemen, where the study sought to determine the internal and external factors that affect financial risk and financial performance. Moreover, the study addressed the impact of financial risks on the financial performance of the Yemeni banking sector. Furthermore study sought to determine the effect of bank size as a control on the relationship between financial risks and the financial performance of Yemeni banks. In addition to finding the mediation effect of financial risk in the relationship between bank-specific determinants and financial performance and finding the moderation role of bank types which is conventional and Islamic banks, and banks' ownership structure of capital which is government, mixed, private, and foreign banks. Finally,

structural equation modeling was conducted to find the total effect of overall study variables on financial risk and performance. So this part presents the main research results from the statistical analysis of the study variables.

8.2 Summary of Finding

8.2.1 Differences in financial performance and financial risk.

First Objective: To determine the differences in financial performance and financial risk in the banking sector in Yemen.

Sub objectives.

- To distinguish the differences in financial performance and financial risk based on banks types.
- To distinguish the differences in financial performance and financial risk based on banks' ownership structure.

Table 4: The Summary Result of Differences in Financial Risk and Financial Performance and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
1.	**H_1: There is a significant difference in financial performance between Islamic banks and conventional banks.**				
1.1	H_{1a}: There is a significant difference in return on assets (ROA) between Islamic banks and conventional banks	Analysis of variance	t-test	t = 6.34 p = .001 accepted at 1%	Supported
1.2	H_{1b}: There is a significant difference in return on equity (ROE) between Islamic banks and conventional banks.	Analysis of variance	t-test	t = 8.36 p = .001 accepted at 1%	Supported
2.	**H_2: There is a significant difference in the financial performance of banks based on the ownership of banks.**				

2.1	H_{2a}: There is a significant difference in return on assets (ROA) of banks based on the ownership of banks.	Analysis of variance	ANOVA	F= 7.683 P= .001 accepted at 1%	Supported
2.2	H_{2b}: There is a significant difference in return on equity (ROE) of banks based on the ownership of banks.	Analysis of variance	ANOVA	F= 1.019 P=.386 Rejected at 5%	Not supported
3.	**H_3: There is a significant difference in financial risk between Islamic banks and conventional banks.**				
3.1	H_{3a}: There is a significant difference in Credit risk (CR1) between Islamic banks and conventional banks.	Analysis of variance	t-test	t= 3.951 p= .001 accepted at 1%	Supported
3.2	H_{3b}: There is a significant difference in Credit risk (CR2) between Islamic banks and conventional banks.	Analysis of variance	t-test	t=2.995 p= .003 accepted at 1%	Supported
3.3	H_{3c}: There is a significant difference in Liquidity risk (LR1) between Islamic banks and conventional banks.	Analysis of variance	t-test	t=-4.332 p= .001 accepted at 1%	Supported
3.4	H_{3d}: There is a significant difference in Liquidity risk (LR2) between Islamic banks and conventional	Analysis of variance	t-test	t=8.143 p= .001 accepted at 1%	Supported

	banks.				
3.5	H_{3e}: There is a significant difference in Foreign exchange risk (FXR) between Islamic banks and conventional banks.	Analysis of variance	t-test	t=-6.304 p= .001 accepted at 1%	Supported
4	**H_4: There is a significant difference in banks' financial risk based on the bank's ownership.**				
4.1	H_{4a}: There is a significant difference in Credit risk (CR1) based on the bank's ownership.	Analysis of variance	ANOVA	F= 7.762 P= .001 accepted at 1%	Supported
4.2	H_{4b}: There is a significant difference in Credit risk (CR2) based on the bank's ownership.	Analysis of variance	ANOVA	F= 4.956 P= .003 accepted at 1%	Supported
4.3	H_{4c}: There is a significant difference in Liquidity risk (LR1) based on the bank's ownership.	Analysis of variance	ANOVA	F= 4.400 P=.005 accepted at 1%	Supported
4.4	H_{4d}: There is a significant difference in Liquidity risk (LR2) based on the bank's ownership.	Analysis of variance	ANOVA	F= 4.873 P= .003 accepted at 1%	Supported
4.5	H_{4e}: There is a significant difference in Foreign exchange risk (FXR based on the bank's ownership.	Analysis of variance	ANOVA	F= 3.245 P= .024 accepted at 5%	Supported

8.2.1.1 Differences in the financial performance of Islamic banks and conventional banks.

Results revealed that the variance is not equal and the average return on assets in the conventional and Islamic banks is a significant difference. Where the mean of conventional

banks is higher than the mean of return on assets (ROA) for Islamic banks, and the average return on equity in the conventional and Islamic banks is a significant difference, where the mean of conventional banks is higher than the mean of return on equity (ROE) for Islamic banks.

8.2.1.2 Differences in the financial performance of government, mixed, private, and foreign banks

Results found a significant difference between the mean of return on assets (ROA) for banks based on the type of ownership, where the mean of return on assets (ROA) for banks based on the type of ownership is not statistically equal mean. Moreover, LSD multiple comparisons found only a significant difference in return on assets (ROA) between the mean of foreign owned banks with other banks ownership, and the non-significant difference between the mean of return on equity (ROE) for banks based on the type of ownership, assumes that the different owned bank have a statistically similar mean.

8.2.1.3 Differences in the financial risk of Islamic and conventional banks

The first sub-hypothesis revealed a significant difference, and the conventional banks had a higher mean than Islamic banks, indicating that the mean scores were not statistically similar to credit risk (CR1).

The second sub-hypothesis revealed a significant difference revealing that conventional banks had a higher mean credit risk (CR2).

The third sub-hypothesis revealed a significant difference, indicating that conventional banks' mean and Islamic banks' mean scores had no statistically similar mean scores on Liquidity risk (LR1).

The fourth sub-hypothesis revealed a significant difference, indicating that conventional banks had higher mean liquidity risk (LR2).

The fifth sub-hypothesis revealed a significant difference indicating that Islamic banks had higher mean foreign currency equity.

8.2.1.4 Differences in the financial risk of different banks' ownership

The first sub-hypothesis revealed a significant difference that foreign-owned banks had the highest mean credit risk (CR1). And the LSD revealed that the difference is between mixed-owned banks and foreign owned banks and between mixed owned banks and private owned banks.

Second sub-hypothesis revealed a significant difference and showed that government banks had the group's highest mean credit risk (CR2), and LSD shows multiple comparisons found between the mean of government banks ownership and private banks ownership, another significant difference between the mean of mixed banks ownership and private owned banks. Moreover, there is a significant difference between the mean of foreign-owned banks and private banks ownership.

Third sub hypothesis revealed a significant difference between the mean liquidity risk (LR1) of banks with different ownership, and the LSD shows multiple comparisons found only between the mean of government bank ownership with other different ownership.

Fourth sub-hypothesis revealed a significant difference showing that foreign-owned banks had the highest mean liquidity risk (LR2), and LSD multiple comparisons was found between the mean of government banks and mixed banks Another significant is between the mean of private banks and mixed banks and between mixed banks and foreign banks

fifth sub-hypothesis showed a significant difference in the mean foreign exchange risk (FXR) of banks with different ownership, which indicates that the mean foreign exchange risk (FXR) of banks with different ownership differ significantly, LSD found that the difference means is between government banks and mixed banks, and between mixed banks and foreign banks.

8.2.2 Impact of bank-specific determinants on financial risk and financial performance.

Second objective: To identify bank-specific determinants of financial risk and financial performance of the banking sector in Yemen.

-Sub objectives

- To identify the impact of bank-specific determinants of financial risk of the banking sector in Yemen.
- To identify the impact of bank-specific determinants of financial performance of the banking sector in Yemen.

Table 5: The Summary Result of Impact Bank-Specific Determinants on Financial Risk and Financial Performance and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
5.	**H_5. There is a significant impact of bank-specific determinants on the credit risk (CR1 and CR2) of the banking sector in Yemen.**				
5.1	H_{5a}: There is a significant impact of bank-specific determinants on the credit risk (CR1) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .464 F = 26.640 p = .001 accepted at 1%	Supported
5.2	H_{5b}: There is a significant impact of bank-specific determinants on credit risk (CR2) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .753 F= 93.910 p = .001 accepted at 1%	Supported
6.	**H_6: There is a significant impact of bank-specific determinants on the Liquidity risk (LR1) and (LR2) of the banking sector in Yemen.**				
6.1	H_{6a}. There is a significant impact of bank-specific determinants liquidity risk (LR1) of the banking sector in Yemen	Multiple Regression	ANOVA	R^2 = .877 F= 219.015 p = .001 accepted at 1%	Supported
6.2	H_{6b}: There is a significant impact of bank-specific determinants on the Liquid risk (LR2) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .540 F= 36.170 p = .001 accepted at 1%	Supported
7.	H_7: There is a significant impact of bank-specific	Multiple Regression	ANOVA	R^2 = .251 F= 10.327	Supported

	determinants on the Foreign exchange risk (FXR) of the banking sector in Yemen.			p = .001 accepted at 1%	
8.	**H_8: There is a significant impact of bank-specific determinants on the financial performance of the banking sector in Yemen.**				
8.1	H_{8a}: There is a significant impact of bank-specific determinants on the retune on assets (ROA) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .359 F= 17.244 p = .001 accepted at 1%	Supported
8.2	H_{8b}: There is a significant impact of bank-specific determinants on the retune on equity (ROE) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .206 F= 7.992 p = .001 accepted at 1%	Supported

8.2.2.1 Impact of bank-specific determinants on financial risk

The second objective was to identify determinants of financial risk in the banking sector in Yemen, So In order to find out the factors that impact financial risk, selected banks' Specific Determinants were measured by (Tangibility (TNA), Impaired loan (IML), Deposits (DR), Assets Quality (AQ) and operation efficiency (OE) on financial risk which represented by credit risk (CR1) proxy Capital Adequacy Ratio, credit risk (CR2) proxy non-performing loan ratio, liquidity risk (LR1) proxy assets to total deposits, liquidity risk (LR2) proxy liquid assets to total assets, and foreign exchange risk (FXR) proxy foreign currency to equity. Multiple regressions was used to test the hypothesis. There is a significant impact of bank-specific factors on the financial risk of the banking sector in Yemen.

-Impact of bank-specific determinants on credit risk (CR1)

The hypothesis is supported. Hence Bank Specific Determinants affect the credit risk (CR1) proxy Capital Adequacy Ratio, and the best significant predictors are assets quality (AQ) and operation efficiency (OE).

-Impact of bank-specific determinants on credit risk (CR2)

.The hypothesis is supported. Hence Bank Specific Determinants have an effect on the credit risk (CR2) proxy non-performing loan ratio, and the best significant predictor is an Impaired loan (IML) and Assets Quality (AQ) .

-Impact of bank-specific determinants on Liquidity Risk (LR1)

The hypothesis is supported. Hence Bank Specific Determinants have an effect on the liquidity risk (LR1) mustered by assets to total deposits and the best significant predictor is deposits (DR).

-Impact of bank-specific determinants on liquidity risk (LR2)

The hypothesis is supported. Hence Bank Specific Determinants have an effect on the liquidity risk (LR2) mustered by liquid assets to total assets and the best significant predictors are assets quality (AQ) and operation efficiency (OE).

-Impact of bank-specific determinants on Foreign exchange risk (FXR)

The hypothesis is supported. Hence Bank Specific Determinants have an effect on the foreign exchange risk (FXR). best significant predictors are Deposits (DR), assets quality (AQ) and Impaired loan (IML).

8.2.2.2 Impact of Bank-specific determinants on financial performance.

The second sub objective was to identify determinants of financial performance in the banking sector in Yemen, So In order to find out the factors that impact financial performance, selected banks' Specific Determinants were measured by (Tangibility (TNA), Impaired loan (IML), Deposits (DR), Assets Quality (AQ) and operation efficiency (OE) on financial performance which measured by return on assets (ROA), and return on equity (ROE) Multiple regression was used to test the hypothesis. There is a significant impact of bank-specific factors on the financial performance of the banking sector in Yemen.

-Impact of Bank-specific determinants on return on assets (ROA)

The hypothesis is supported. Hence Bank Specific Determinants affect the return on assets (ROA), and the best significant predictors are Deposits ratio (DR), and assets quality (AQ).

-Impact of Bank-specific determinants on return on equity (ROE)

The hypothesis is supported. Hence Bank Specific Determinants affect the return on equity (ROE). And the best significant predictor is Deposits ratio (DR).

8.2.3 Impact of macroeconomic factors on financial risk and financial performance

Third objective: To identify the impact of macroeconomic factors on financial risk and financial performance

of the banking sector in Yemen

-**Sub objectives**

To identify the impact of macroeconomic factors on the financial risk of the banking sector in Yemen.

To identify the impact of macroeconomic factors on the financial performance of banking sector in Yemen.

Table 6: The Summary Result of Impact of Macroeconomic Factors on Financial Risk and Financial Performance and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
9.	**H_9: There is a significant impact of Macroeconomic factors on the financial risk of the banking sector in Yemen.**				
9.1	H_{9a}: There is a significant impact of Macroeconomic factors on the credit risk (CR1) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .006 F = 0.457 p = .634 rejected at 5%	Not Supported
9.2	H_{9b}: There is a significant impact of Macroeconomic factor on credit risk (CR2) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .053 F= 4.393 p = .014 accepted at 5%	Supported
9.3	H_{9c}: There is a significant impact of Macroeconomic factor on liquidity risk (LR1) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .008 F= 0.607 p = .546 Rejected at 5%	Not Supported

9.4	H_{9d}: There is a significant impact of Macroeconomic factors on liquidity risk (LR2) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .060 F= 4.987 p = .008 accepted at 1%	Supported
9.5	H_{9e}: There is a significant impact of Macroeconomic factors on foreign exchange risk (FXR) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .039 F= 3.208 p = .043 accepted at 5%	Supported
10	**H_{10}: There is a significant impact of Macroeconomic factors on the financial performance of the banking sector in Yemen.**				
10.1	H_{10a}: There is a significant impact of Macroeconomic factors on return on assets (ROA) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .008 F= 0.655 p = .521 rejected at 5%	Not Supported
10.2	H_{10b}: There is a significant impact of Macroeconomic factor on return on equity (ROE) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .016 F= 1.310 p = .273 rejected at 5%	Not supported

8.2.3.1 Impact of Macroeconomic factors on financial risk

The results of the impact of macroeconomic factors which are inflation and GDP, on financial risk represented by credit risk (CR1) proxy capital adequacy ratio, credit risk (CR2) proxy non-performing loan ratio , liquidity risk (LR1) proxy total asset to total deposit, liquidity risk (LR2) proxy liquid asset to total assets , and foreign exchange risk (FXR) proxy foreign currency to equity .

-Impact of Macroeconomic factors on credit risk (CR1)

The hypothesis is not supported. Hence, the macroeconomic factors do not affect the credit risk (CR1) proxy capital adequacy ratio.

-Impact of Macroeconomic factors on credit risk (CR2)

The hypothesis is supported. Macroeconomic factors have an effect on the (CR2) proxy non-performing loan ratio.

-Impact of Macroeconomic factors on liquidity risk (LR1)

The hypothesis is not supported. The microeconomic factors do not have an effect on the liquidity risk (LR1) proxy total asset to total deposit.

-Impact of Macroeconomic factors on liquidity risk (LR2)

The hypothesis is supported. The macroeconomic factors affect the liquidity risk (LR2) proxy liquid assets to total assets.

-Impact of Macroeconomic factors on foreign exchange risk (FXR)

The hypothesis is supported. The macroeconomic factors affect the foreign exchange risk (FXR) proxy foreign currency to equity.

8.2.3.2 Impact of Macroeconomic factors on financial performance

- Impact of Macroeconomic factors on return on assets (ROA)

The hypothesis is not supported. Macroeconomic factors do not affect the return on assets (ROA).

- Impact of Macroeconomic factors on return on equity (ROE)

The hypothesis is not supported. Macroeconomic factors do not have an effect on the return on equity (ROE).

8.2.4 Impact of financial risk on financial performance

Fourth Objective: To determine the impact of financial risk on the financial performance of the banking sector in Yemen.

Sub objectives

To determine the impact of credit risk on the financial performance of the banking sector in Yemen

To establish the impact of liquidity risk on the financial performance of the banking sector in Yemen

To determine the impact of foreign exchange risk on the financial performance of banks in Yemen.

Table 7: The Summary Result of Impact of Financial Risk on Financial Performance and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
11.	**H_{11}: There is a significant impact of credit risk (CR1 and CR2) on the financial performance of the banking sector in Yemen.**				
11.1	H_{11a}: There is a significant impact of credit risk (CR1 and CR2) on return on assets (ROA) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .394 F = 51.094 p = .001 accepted at 1%	Supported
11.2	H_{11b}: There is a significant impact of credit risk (CR1 and CR2) on return on equity (ROE) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .061 F= 5.139 p = .007 accepted at 1%	Supported
12.	**H_{12}: There is a significant impact of liquidity risk (LR1 and LR2) on financial performance of the banking sector in Yemen.**				
12.1	H_{12a}: There is a significant impact of liquidity risk (LR1 and (LR2) on return on assets (ROA) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .349 F= 41.992 p = .001 accepted at 1%	Supported
12.2	H_{12b}: There is a significant impact of Liquidity Risk (LR1 and LR2) on return on equity (ROE) of the banking sector in Yemen.	Multiple Regression	ANOVA	R^2 = .141 F= 12.834 p = .001 accepted at 1%	Supported
13.	**H_{13}: There is a significant impact of Foreign exchange risk (FXR) on financial performance of the banking sector in Yemen.**				

12.1	. H_{13a}: There is a significant impact of Foreign exchange risk (FXR) on return on assets (ROA) of the banking sector in Yemen.	Simple Regression	ANOVA	R^2 = .003 F= 0.427 p = .514 rejected at 5%	Not Supported
13.2	H_{13b}: There is a significant impact of Foreign exchange risk (FXR) on return on equity (ROE) of the banking sector in Yemen.	Simple Regression	ANOVA	R^2 =0.090 F= 15.600 p = 0.001 accepted at 1%	Supported
14.	H_{14} : Bank size has an control effect in the relationship between financial risk and financial performance	Correlation	R	p = .001 accepted at 1%	Supported

8.2.4.1 Impact of credit risk (CR1 and CR2) on return on assets (ROA)

Results show the analysis of the significance of multiple regression where the value is less than .01, indicating the model significant, which means the credit risks (CR1 and CR2) (IV) are statistically significant with return on assets (ROA) (DV), as the p-value is less than .01. The hypothesis is supported. Credit risk (CR1 and CR2) have an effect on the return on assets (ROA).

- **Impact of credit risk (CR1 and CR2) on return in equity (ROE)**

The hypothesis is supported. Credit risk (CR1 and CR2) have an effect on the return on equity (ROE).

- **Impact of liquidity risk (LR1 and LR2) on return on assets (ROA)**

The hypothesis is supported. Liquidity risk (LR1 and LR2) have an effect on the return on assets (ROA).

- **Impact of liquidity risk (LR1 and LR2) on return in equity (ROE)**

The hypothesis is supported. Liquidity risk (LR1 and LR2) effect on the return in equity (ROE).

- **Impact of foreign exchange risk (FXR) on return on assets (ROA)**

The hypothesis is supported. Foreign exchange risk (FXR) not have an effect on the return on assets (ROA).

- **Impact of Foreign exchange risk (FXR) on return in equity (ROE)**

The hypothesis is supported. Foreign exchange risk (FXR) have an effect the return in equity (ROE) .

8.2.5 Control effects of bank size in the relationship between financial risk and financial performance

Fifth Objective: To determine the control effects of (size) on the relationship between financial risk and financial performance in the banking sector in Yemen.

When the Pearson Correlation test was used to analyze between financial risk represented by credit risk CR1 and CR2 , liquidity risk LR1 and LR2 and foreign exchange risk FXR and financial performance proxy ROA and ROE keeping bank size (Logsize) as the control variable the following results were obtained. A positive significant correlation was observed between CR1 and ROA (R= .544; p= .001). Similarly the Pearson correlation between CR1 and ROE revealed a significant relationship (R= .386; p=.001) indicating that as CR1 increases ROA and ROE also increases significantly and vice-versa. A non-significant correlation was observed between CR2 and ROA (R= .190; p= .016) however, the correlation between CR2 and ROE (R= .096; p=.230) indicating that there is no relationship between CR2 & ROE. A significant correlation was observed between LR1 and ROA (R= .315; p= .001) however, the correlation between LR1 and ROE (R= -.053; p=.504) indicating that there is no relationship between LR1 & ROE. In the same way A significant correlation was observed between LR2 with ROA and ROE (R= .386, .373; p= .001, .001) respectively. A non-significant correlation was observed between FXR and ROA (R= -0.15; p= .848) however, the correlation between FXR and ROE (R= -0.332; p=.001) indicating that there is relationship between FXR & ROE .

8.2.6 Moderation effect of banks types and banks ownership on the relationship between financial risk and financial performance

Sixth objective: To determine the moderating role of banks types and banks ownership on the relationship between financial risk on financial performance in the banking sector in Yemen. The objective was to investigate the moderation role of bank type and bank ownership on the impact of financial risk on the financial performance of the banking sector in Yemen. Using

comparison Multi-group effect between banks types (Islamic banks and conventional banks) and among banks ownership (Government-owned banks Mixed owned banks Private owned banks and Foreign-owned banks) Where the first main hypothesis is**:** Bank type has is a statistically significant difference in the effect of financial risk on financial performance in the banking sector and the second main hypothesis is: Bank ownership structure has statistically significantly different in the effect of financial risk on financial performance in banking sector.

8.2.6.1 Effect of financial risk on financial performance between Islamic and Conventional bank

Table 8: The Summary Result of the Effect of Financial Risk on Financial Performance between Bank Types and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
15.	**H_{15}: Bank type has is a statistically significant difference in the effect of financial risk on financial performance in the banking sector.**				
15.1	H_{15a}**.** There is a statistically significant difference in the effect of credit risk on ROA between various banks types.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=27.686 p = .001 accepted at 1%	Supported
15.2	H_{15b}**.** There is a statistically significant difference in the effect of credit risk on ROE between banks types	Multi-Group Analysis	Chi-Square Difference Test	CMIN=14.403 p = .001 accepted at 1%	Supported
15.3	H_{15c}**:** There is a statistically significant difference in the effect of liquidity risk on ROA between banks types.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=92.684 p = .001 accepted at 1%	Supported

15.4	H_{15d}: There is a statistically significant difference in the effect of liquidity risk on ROE between banks types.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=14.307 p = .001 accepted at 1%	Supported
15.5	H_{15e}**:** There is a statistically significant difference in the effect of foreign exchange risk on ROA between banks types.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=1.647 p = .199 rejected at 5%	Not Supported
15.6	H_{15f}**:** There is a statistically significant difference in the effect of foreign exchange risk on ROE between banks types**.**	Multi-Group Analysis	Chi-Square Difference Test	CMIN=7.254 p = .007 accepted at 1%	Supported

Effect of credit risk on ROA between Conventional and Islamic banks.

The hypothesis is supported where the impact of credit risk on return in assets (ROA) is a significant difference across groups where the impact of credit risk (CR1) on return in assets (ROA) is positive and significant for both conventional but the estimate is greater for conventional and Islamic banks. And credit risk (CR2) is non-significant for conventional banks and a negative significant for Islamic banks.

Effect of credit risk on ROE between Conventional and Islamic banks

The hypothesis is supported where the impact of credit risk on ROE is a significant difference where the impact of credit risk (CR1and CR2) on return in equity (ROE) is non-significant for conventional and significant for Islamic banks.

Effect of liquidity risk on ROA between Conventional and Islamic banks.

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference where the effect of liquidity risk (LR1) proxy total assets to total deposit on return on

assets (ROA) is positive and significant for conventional banks and non-significant for Islamic banks for the effect of liquidity risk (LR2) proxy liquid assets to total assets on return on assets (ROA) is significant for both conventional and Islamic banks with negative for conventional and positive for Islamic.

Effect of liquidity risk on ROE between Conventional and Islamic banks

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference where the effect of liquidity risk (LR1) proxy total assets to total deposit on return on equity (ROE) is positive and non-significant for both conventional and Islamic banks. For the effect of liquidity risk (LR2) proxy liquid assets to total assets on return on equity (ROE) its positive and significant for Islamic banks and non-significant for conventional banks.

Effect of foreign exchange risk on ROA between Conventional and Islamic banks

The hypothesis is not supported where the impact of liquidity risk on ROA is a non-significant difference, where the effect of foreign exchange risk (FXR) proxy foreign currency to equity on return on assets (ROA) is a positive significant for both conventional and Islamic banks, assumes the estimation and effect are same for both.

Effect of foreign exchange risk on ROE between Conventional and Islamic banks

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference, where the estimate result is a negative significant for conventional banks and non-significant for Islamic banks.

8.2.6.2 Effect of financial risk on financial performance in government, mixed, private and foreign banks.

Table 9: The Summary Result of the Effect of Financial Risk on Financial Performance among Banks Based on Banks Ownership and Hypothesis Test Finding.

No	Research Hypothesis	Statistic Used	Test Used	Test Statistic Value	Test Finding
16.	**H_{16}: Bank ownership structure has a statistically significant difference in the effect of financial risk on financial performance in the banking sector.**				
16.1	H_{16a}: Bank ownership structure has statistically significant different in	Multi-Group Analysis	Chi-Square Difference Test	CMIN=87.631 p = .001 accepted at 1%	Supported

	the effect of credit risk on ROA in banking sector.				
16.2	H_{16b}: Bank ownership structure has statistically significant different in the effect of credit risk on ROE in banking sector.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=21.116 p = .002 accepted at 1%	Supported
16.3	H_{16c}: Bank ownership structure has statistically significant different in the effect of liquidity risk on ROA in banking sector.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=114.112 p = .001 accepted at 1%	Supported
16.4	H_{16d}: Bank ownership structure has statistically significant difference in the effect of liquidity risk on ROE in the banking sector.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=89.142 p = .001 accepted at 1%	Supported
16.5	H_{16e}: Bank ownership structure has statistically significant difference in the effect of foreign exchange risk on ROA in banking sector.	Multi-Group Analysis	Chi-Square Difference Test	CMIN=7.927 p = .048 accepted at 5%	Supported
16.6	H_{16f}: Bank ownership structure has statistically significant different in the effect of foreign	Multi-Group Analysis	Chi-Square Difference Test	CMIN=2.124 p = .547 rejected at 1%	Not Supported

	exchange risk on ROE in banking sector.				

Effect of credit risk on ROA in government, mixed, private and foreign banks.

The hypothesis is supported where the impact of credit risk on ROA is a significant difference.

Effect of Credit risk on ROE in government, mixed, private and foreign banks

The hypothesis is supported where the impact of credit risk on ROE is a significant difference

Effect of liquidity risk and ROA in government, mixed, private and foreign banks.

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference.

Effect of liquidity risk and ROE in government, mixed, private and foreign banks

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference.

Effect of foreign exchange risk and ROA in government, mixed, private and foreign banks.

The hypothesis is supported where the impact of liquidity risk on ROA is a significant difference**.**

Effect of Foreign exchange risk and ROE in government, mixed, private and foreign banks

The hypothesis is not supported where the impact of liquidity risk on ROA is not significant difference.

8.2.7 Mediation effect of financial risk on the relationship between bank-specific factors and financial performance.

Seventh objective: To determine the mediating effects of financial risk on the relationship between bank-specific factors and financial performance in the banking sector in Yemen.

Table 10: The Summary Result of Financial Risk Mediation Effect on The Relationship Between Bank-Specific Determinants and ROA and Hypothesis Test Finding.

No	Research Hypothesis	Test Used	Parameter	Test Statistic Value	Test Finding
17.	H_{17}: **Financial risk has a statistical significance mediation effect on the relationship between bank-specific determinants and return on assets (ROA).**				

17.1	H_{17a}: Credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA.	Joint Significant Test	TNA to CR1 IML to CR1 DR to CR1 AQ to CR1 OE to CR1 Overall CR1 to ROA	p = .004 p = .851 p = .440 p = .014 p = .016 p = .001 P = .012 tested at 5%	Supported
17.2	H_{17b}: Credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA	Joint Significant Test	TNA to CR2 IML to CR2 DR to CR2 AQ to CR2 OE to CR2 Overall CR2 to ROA	p = .069 p = .005 p = .355 p = .006 p = .018 p = .001 P = .010 tested at 5%	Supported
17.3	H_{17c}: Liquidity risk LR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA.	Joint Significant Test	TNA to LR1 IML to LR1 DR to LR1 AQ to LR1 OE to LR1 Overall LR1 to ROA	p = .071 p = .716 p = .008 p = .133 p = .006 p = .001 P = .009 tested at 5%	Supported
17.4	H_{17d} : Liquidity risk LR2 has a statistical significance mediation effect on the relationship between bank-specific	Joint Significant Test	TNA to LR2 IML to LR2 DR to LR2 AQ to LR2 OE to LR2 Overall	p = .015 p = .011 p = .010 p = .004 p = .012 p = .001	Not Supported

	determinants and ROA.		LR2 to ROA	P = .298 tested at 5%	
17.5	$H_{17e:}$ Foreign exchange risk FXR has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA.	Joint Significant Test	TNA to FXR IML to FXR DR to FXR AQ to FXR OE to FXR Overall FXR to ROA	p = .104 p = .046 p = .021 p = .014 p = .413 p =.001 P = .605 tested at 5%	Not Supported
18.	H_{18}: **Financial risk has a statistical significance mediation effect on the relationship between bank-specific determinants and return on equity (ROE)**				
18.1	$H_{18a:}$ Credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE	Joint significant test	TNA to CR1 IML to CR1 DR to CR1 AQ to CR1 OE to CR1 Overall CR1 to ROE	p = .004 p = .851 p = .440 p = .014 p = .016 p =.001 P = .039 tested at 5%	Supported
18.2	$H_{18b:}$ Credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.	Joint significant test	TNA to CR2 IML to CR2 DR to CR2 AQ to CR2 OE to CR2 Overall CR2 to ROE	p = .069 p = .005 p = .355 p = .006 p = .018 p = .001 P = .005 tested at 5%	Supported
18.3	$H_{18c:}$ liquidity risk (LR1) has a statistical significance	Joint significant test	TNA to LR1 IML to LR1 DR to LR1	p = .071 p = .716 p = .008	Supported

	mediation effect on the relationship between bank-specific determinants and ROE.		AQ to LR1 OE to LR1 Overall LR1 to ROE	p = .133 p = .006 p = .001 P = .009 tested at 5%	
18.4	H_{18d}: Liquidity risk (LR2) has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE	Joint significant test	TNA to LR2 IML to LR2 DR to LR2 AQ to LR2 OE to LR2 Overall LR2 to ROE	p = .015 p = .011 p = .010 p = .004 p = .012 p = .001 P = .480 tested at 5%	Not Supported
18.5	H_{18e}:Foreign exchange risk (FXR) has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.	Joint significant test	TNA to FXR IML to FXR DR to FXR AQ to FXR OE to FXR Overall FXR to ROE	p = .104 p = .046 p = .021 p = .014 p = .413 p = .001 P = .020 tested at 5%	Supported

- **Credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**

The result shows mediating effect of credit risk CR1 on the relationship between TAN, AQ and OE and return on assets ROA. And no mediating effect on the relationship between IML and DR and return on assets ROA. The hypothesis is supported, Therefore it can be observed that credit risk (CR1) has a significant mediating impact between bank-specific determinants and return on assets (ROA).

- **Credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**

The result shows the credit risk CR2 has no mediating effect in the relationship between TNA, and DR, and return on assets (ROA). And there is a mediating effete of credit risk CR1 in the relationship between IML, AQ and OE and return on assets (ROA). Therefore it can be observed that credit risk (CR2) has a significant mediating impact between bank-specific determinants and return on assets ROA.

- **Liquidity Risk LR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**

The result revealed there is no mediating effect of the liquidity risk LR1 on the mediating effect between IML and AQ, and return on assets (ROA), and there is a mediation effect of liquidity risk LR1 in the relationship between DR, and OE and return on assets (ROA) . It can be observed that liquidity risk LR1 has a significant mediating impact on bank-specific determinants and return on assets (ROA).

- **Liquidity risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**

The result shows the is no mediating effect of the liquidity risk CR2 between all of the bank-specific determinants (TNA, IML, DR, AQ, and OE) and return on assets (ROA).

- **Foreign exchange risk FXR has a statistical significance mediation effect on the relationship between bank-specific determinants and ROA**.

The result shows the is no mediating effect of the foreign exchange risk FXR between all of the bank-specific determinants (TNA, IML, DR, AQ, and OE) and return on assets (ROA).

we conclude that Financial Risk has a significant mediation effect on the relationship between bank-specific determinants and return in assets as out of five financial risks proxy three of them (CR1,CR2, and LR1) are significantly mediation the relationship between bank-specific determinants and return on assets (ROA).

- **Credit risk CR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE**

The result shows the no mediating effect of the credit risk CR1 between both two factors (IML and DR), while there is mediation effect of the credit risk CR1 between TNA, AQ, and OE and ROA with a p-value less than 0.05 so It can be observed that credit risk (CR1) has a significant mediating impact between bank-specific determinants. And return on equity.

- **Credit risk CR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE**

The result shows the no mediating effect of the credit risk CR2 between both two factors (TAN and DR), while there is mediation effect of the credit risk CR1 between IML, AQ, and OE and ROA with a p-value less than 0.05 so It can be observed that credit risk (CR2) has a significant mediating impact between bank-specific determinants. And return on equity.

- **Liquidity risk LR1 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.**

The hypothesis is supported where there is mediation effect of liquidity risk LR1 on DR and OE while result shows there is no mediating effect of the liquidity risk LR1 for TNA, IML, and AQ. Which is greater than 0.05. This result shows the mediating effect of the liquidity risk LR1 between bank-specific and return on equity (ROE).

- **Liquidity risk LR2 has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE**

The result shows the mediating effect of the liquidity risk LR1 between all of the bank-specific determinants (TNA, IML, DR, AQ, and OE) and returns on equity (ROE), while there is no mediating effect of the liquidity risk LR1 between OE of p-value 0.051 and ROE.

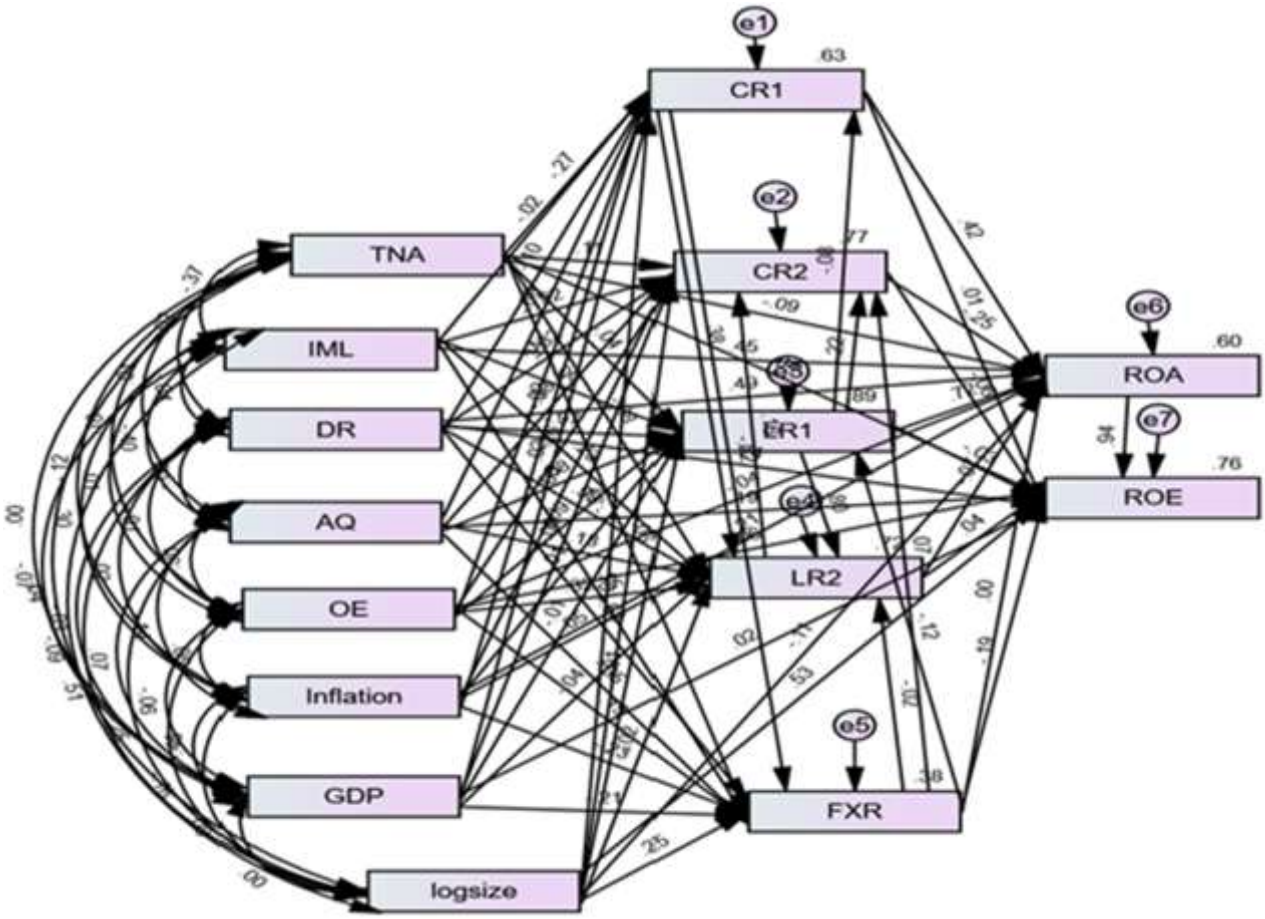
- **Foreign exchange risk FXR has a statistical significance mediation effect on the relationship between bank-specific determinants and ROE.**

The result shows the mediating effect of the liquidity risk LR1 between the bank-specific determinants (, IML, DR, and OE) and return on equity (ROE), except there is no mediating effect of the FXR between TAN and OE of p-value greater than 0.05. and ROE.

we conclude that Financial Risk has a significant mediation effect on the relationship between bank-specific determinants and return in assets as out of five financial risks measured four of them (CR1, CR2 LR1, and FXR) are significantly mediation the relationship between bank-specific determinants and return on equity ROE.

8.2.8 Final Model

Figure 2. Final Path Analysis Model



- Measurement Model

The measurement model obtained good fit indices where CMIN = 20.171, DF= 12, CMIN significance = 0.084, CMIN/DF= 9.703, GFI= 0.992, AGFI= 0.806, IFI= 0.997, CFI=0.997, NFI= 0.994, RMSEA= 0.077.

-Direct Effect

The important and significant variables that have direct effect on return on equity (ROE) is the logsize positive and significant, where the negative and significant is FXR and CR2. For return on assets (ROA), the positive and significant predictor variable is an CR1,IML, DR and LR1, and the negative and significant predictor is CR2 and inflation, For LR1, the negative and significant predictor is AQ, FXR and DR. For CR2, the a positive and significant estimate is the AQ, TNA and IML, and the negative and significant is OE and DR. For CR1, the positive and significant standardized estimate is log size, OE, AQ and TNA. For LR2, the positive and

significant are OE, DR IML, LR1, and CR1 whereas the negative and significant is AQ. Finally, the predictor of FXR compared to others is AQ, DR, GDP and inflation, with a standardized estimate negative and significant ,where the positive and significant is log size.

-Indirect Effect

The result of indirect effect for FXR has a negative and significant effect on LR2, CR2 has a negative and significant effect on ROE, CR1 has a positive and significant effect on LR1, log size has a positive and significant effect on FXR and significant negative effect on LR1, LR2, CR2, ROA and ROE, LR1 has a positive and significant effect on CR1 and ROE, TNA has a positive and significant effect on FXR, and negative significant indirect effect LR2, CR2, ROA and ROE, GDP has a positive and significant effect on LR, IML has a positive and significant effect on CR2 and negative and significant effect on ROA, DR has a positive and significant effect on LR1, and CR2 , and significant negative effect on LR2 and ROA, AQ has a positive and significant effect on FXR and LR1 , and negative and significant effects on AQ, ROA, and ROE, Inflation has a positive and significant effect on FXR, and OE has a negative and significant effect on FXR.

-Mediation effect of financial risk

Significant: The result of financial risk (credit risk CR1, CR2, and liquidity risk LR1,) has a mediation effect on the relationship between bank-specific determinants and financial performance measured by return on assets (ROA). and financial risk (credit risk CR1, CR2, liquidity risk LR1, and FXR) has a mediation effect on the relationship between bank-specific determinants and financial performance measured by and return on equity (ROE)

Non significant: liquidity risk LR2, and FXR have no mediating effect on the relationship between bank-specific determinants and return on assets (ROA), in addition liquidity risk LR2, has no mediating effect on the relationship between bank-specific determinants and return on equity (ROE).

-Final estimation of variance

Squared multiple correlations R2 reveals that the percentage of variation explained by the predictors on the dependent variables. For instance, 37.8 % of the variation in the FXR is explained by the considered predictors, and 88.7 % of the variation in the LR1 is explained by the predictors on the dependent variables .63.3% of the variation in the factors CR1 , 72.2 % of the variation in LR2 , 76.8 % of the variation in CR2 , 59.8 % of the variation in ROA, final

76.3% of the variation on roe is explained by the independent factors considered for the analysis.

9 Recommendations of Study

Work to develop an effective policy in attracting deposits and granting credit that achieves a balance between the increasing profit of banks and reducing the risk of non-payment in light of the economic conditions in which it is living country. Review credit facilities in commercial banks then, to enhance their ability to study requests for facilities and take appropriate decisions which reduce the risk of non-payment. Study the risks and classify them within each bank with the aim of because of their importance and their relationship to performance. Analyzing financial statements continuously and not applying or generalizing the results of other banks of another type of ownership, where the results are affected and vary based on the bank's characteristics, decisions and internal policies Commitment to the policies of the Central Bank of Yemen in terms of risk management as well as the amount of paid-up capital

The bank's obligations must be managed in a manner that is consistent with its requirements for liquidity, with the availability of liquid assets that can be converted into cash without incurring losses while simultaneously formulating a preventative strategy to deal with unexpected demands. To take the deposit out of your account

The importance of establishing minimum capital adequacy limits that assist the bank in the absorption of losses and the level of risk that he ought to take into consideration, particularly in relation to banks that engage in international activities.

The need to set up controls in order to lower the risk of concentration, which necessitates the existence of a good information system that is able to precisely characterise the bank's portfolio.

The effectiveness of asset quality assessment policies and the sufficiency of debt provisioning are two factors that should be considered.

By conducting a thorough analysis of the policies of the bank as well as conducting regular audits of the rating Assets and their provisions, in particular loans and credit rating criteria.

It is necessary to set up controls in order to reduce the risks associated with liquidity management. These controls can be implemented in the form of a good information management system, centralized control of liquidity, identification of the necessary funding, and diversification of funding sources.

The necessity of working toward providing adequate and appropriate internal control systems for the size of the Bank's activities through the institution's structure, as well as effective control over assets and investments, is something that must be worked on.

It is possible, given the current circumstances, to carry out additional future studies on the research problem in the light of rapid and subsequent environmental variables.

10 Contribution to Knowledge

This study made a significant contributions to the knowledge that has been presented; the study provided a theoretical contribution to managing the financial risks of the banking sector to contribute to the literature on risks and their internal and external determinants through the development and testing of an empirical, conceptual framework that identified a set of banking and economic factors and their impact on the performance of the Yemeni banking sector , and the research study contributes to the literature in several theoretical and practical ways that are unique in its approved methodology, where it analysed the interaction between different financial risks and verified the link with banks' performance. The research focused on financial data as it is more realistic and accurate in investigating the impact of financial risks on financial performance of commercial banks in Yemen

As for the theoretical contributions, the study provides a broader view, as it is not limited to analysing the financial risks of the Yemeni banking sector and their impact on financial performance but also studying the determinants of risks.

The study has also assumed homogeneity supporting the risk management theory at the commercial level of banks in Yemen. The study provides a simple illustration of the interaction between different types of financial risks are represented by credit risk, liquidity risk and exchange rate risk for different types of banks, including Islamic and conventional, as well as local, foreign, governmental and private. These results help risk managers in banks to know the relative weights of the impact of risks on the financial performance of banks in order to hedge the management of determinants to control risks when the appropriate level to strengthen the financial position and achieve the highest profitability.

The study revealed the role of bank size in the relationships between financial risks and banks' performance In Yemen.

In light of the findings of the study, a set of recommendations were reached, the most important of which was to follow up on clients who benefit from credit that the funds go for credit purposes and to provide advice and guidance to clients in order to educate them and

rationalize them in the use of the necessary funds on a regular basis and that financial reports disclose profitability ratios transparently and objectively disclose the sources of revenue inaccurate, understandable and comparable ways.

11 Conclusion

The study's Objectives were to determine the differences in financial risk and financial performance in the banking sector in Yemen. , to identify causes determining the financial risk of the banking sector in Yemen. Moreover, the main objective is to determine the impact of financial risk on the financial performance of the banking sector in Yemen with control effects of (size). In addition to determining the moderating role of bank types and ownership on the relationship between financial risk and financial performance in the banking sector in Yemen. Moreover, finally to determine the mediating effects of financial risk on the relationship between bank-specific factors and financial performance in the banking sector in Yemen. Was the outcome expected to develop a model able to predict the variance in the financial performance of the banking sector in Yemen.

Study period and sample were the study used panel data of sixteen banks operating in Yemen, and the period of study is from 2010-2019

Study variables Include bank-specific and macroeconomic factors as independent variables and financial risk as mediating and independent, where bank types and ownership are the moderator variable and the outcome to the dependent variable financial performance.

Statistical techniques used descriptive statistics, correlation, regression, t-test, ANOVA, multi-group, joint significant mediation effect, and structural equation model.

Results :

Financial performance variance: There is a significant difference in ROA and ROE in Islamic and conventional banks and a significant difference in ROA based on bank ownership. In contrast, there is no significant difference in ROE based on bank ownership.

Financial risk variance: The result revealed a significant difference in ROE and ROA, in credit risk, liquidity risk, and foreign exchange risk between all classifications of banks.

Impact of bank-specific determinants: The study found a significant impact of bank-specific determinants (Tangibility (TNA), Impaired loan (IML), Deposits (DR), Assets Quality (AQ) and operation efficiency (OE)), (IV) on financial risk (credit risk CR1, CR2, liquidity risk LR1, LR2, and FXR) and financial performance measured by ROA and ROE, (DV).

Impact of macroeconomic factors: The study found a significant impact on financial risk only on credit risk CR2, liquidity risk LR2, and FXR, where there is no

significant impact on other financial risks, such as credit risk CR1, and liquidity risk LR, in addition to no significant impact on financial performance ROA and ROE.

The impact of financial risk on financial performance: There is a significant impact of financial risk proxies (credit risk CR1, CR2, liquidity risk LR1, LR2, and FXR) on financial performance measured by ROA and ROE (DV). Except for the impact of FXR on ROA is not significant.

Control effect: The result found that bank size controls the relationship between financial risk and financial performance.

Moderation effect: First, the effect of financial risk on financial performance between Islamic and conventional banks is significantly different except FXR on ROA no significant difference. Second, the effect of financial risk on financial performance in government, mixed, private and foreign banks is significantly different except FXR on ROE no significant difference.

Indirect effect: the result of the independent variable revealed that bank-specific determinants and macroeconomic factors indirectly affect financial risk and financial performance.

Mediation effect of financial risk: The result of financial risk (credit risk CR1, CR2, and liquidity risk LR1) has a mediation effect on the relationship between bank-specific determinants and financial performance measured by return on assets (ROA). Furthermore, financial risk (credit risk CR1, CR2, liquidity risk LR1, and FXR) has a mediation effect on the relationship between bank-specific determinants and financial performance measured by and return on equity (ROE, while liquidity risk LR2 and FXR have no mediating effect on the relationship between bank-specific determinants and return on assets (ROA), in addition, liquidity risk LR2, has no mediating effect on the relationship between bank-specific determinants and return on equity (ROE).

Final model: measurement model obtained good fit indices where CMIN = 20.171, DF= 12, CMIN significance = 0.084, CMIN/DF= 9.703, GFI= 0.992, AGFI= 0.806, IFI= 0.997, CFI=0.997, NFI= 0.994, RMSEA= 0.077. where variation is explained by the predictors on the dependent variables. Are 37.8 % of the variation in the FXR, 88.7 % of the variation in the LR1, 63.3% of the variation in the CR1 , 72.2 % of the variation in LR2 , 76.8 % of the variation in

CR2 , 59.8 % of the variation in ROA, final 76.3% of the variation on ROE is explained by the independent factors considered for the analysis.

12 Area for Further Research

Based on the previous results, there is a need to study the regulatory frameworks for banks to find out how different they are based on the general regulatory framework of the Central Bank of Yemen.

Future research can focus on repeating the study of financial risks for different economic sectors.

Future studies of this kind can be carried out using a survey of the industry and the beneficiaries simultaneously for qualitative analysis. This may provide more insight into the sector and beneficiaries of the behaviour of both managers and beneficiaries towards these risks

It is possible to study the role of the Institute of Banking Studies in risk management for Yemeni banks and study the financial behaviour of beneficiaries after the 2011 crisis. It is possible to study the determinants of performance in the banking sector, with its various classifications, in order to evaluate and identify the factors responsible for the differences in financial performance. The only factor that has been taken into consideration in this research is the role that the type of banks and their ownership play in the relationship between risk and performance.

Within the scope of this investigation, the quantitative component of the evaluation was the only one that was taken into consideration. Both in terms of financial performance and risks In addition to the factors, there may also be some qualitative aspects, such as quality and efficiency, that affect performance. These aspects could include:

This body of research is founded solely on secondary sources of information that can be expanded upon. By obtaining the perspectives of senior bank employees regarding the financial risks and financial performance of banks, the researcher may be better able to identify the factors that are responsible for the differences in the banks' financial situations and the operation of banks.

It is also possible to study the role of the central bank in restoring customers' confidence in the banking sector in light of the current liquidity crisis.

Future research may include measuring the extent to which the performance of the Yemeni banking sector is related to economic changes before and after the 2011 crisis.

This study did not consider the impact of financial risks on the sources of funding and thus determine the impact of the financing structure on financial risks and their repercussions on financial performance.

Further research Can conducted to determine the external and internal causes and determinants of financial risks since this study included only five determinants of banking factors.

The research Can expanded to include non-financial factors such as ownership and market structure and supervisory factors and microeconomic factors to give an in-depth look.

More studies can be conducted on operational risks and their role in the relationship between financial risks and the financial performance of the Yemeni banking sector

Further research can conducted to determine future trends and financial risk management challenges in the digital economy to gain insight In financial risk issues as the market has seen increasing complexity in financial affairs.

Further research to study the relationship between bank type and bank ownership of relating to regulation and risk behavior.

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List of Publications

- Published paper titled EASE OF DOING BUSINESS: A REVIEW. Journal of *Information and Computational Science Volume 11* Issue 4 – 2021 ISSN: 1548-7741. (Coursework Assignment)

- Presented paper titled Economic Growth of Selected Arab Spring Countries in the Three-Day International Virtual Conference on Multidisciplinary SocioEconomic and Cultural Studies Jointly Organised by Shillong Law College, Dhankheti, Shillong, Meghalaya, India in Collaboration with Cape Comorin Trust, India in association with *Cape Comorin Publisher, India* on 01- 03 July 2020.

- Published paper titled Private Sector Credit and Economic Growth: Evidence From Yemen, *an international multidisciplinary quarterly bilingual peer reviewed refereed research journal, vol. 11 issue 41* January to march 2021.

- Published paper titled Empirical Analysis of Microfinance And Economic Growth of Yemen**.** *International Journal of Business Ethics in Developing Economies, 10* (1) 2021, 36-40 http://publishingindia.com/ijbede/

- Published paper titled The Impact of Financial Deepening on Economic Growth: Empirical Evidence from Yemen (1994-2018). *Journal of Economics, Management and Trade, 28*(8): 70-77, 2022; Article no.JEMT.79039 ISSN: 2456-9216

- Paper titled Bank specific determinants of financial risk: panel evidence. Sent to journal and under processes in *accounting and financial management journal.*

- Paper titled determinants of financial performance of banking sector in Yemen. Currently Under revising.

- Working on a paper titled mediation effect of financial risk between Bank specific determinants and financial performance.

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